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Certain Points

IN THE DIAGNOSIS AND TREATMENT OF ANGINA PECTORIS.

An Address Delivered to the Cambridge Medical Society on May 4th, 1923,

BY THE RIGHT HON. SIR CLIFFORD ALLBUTT, P.C., K.C.B., F.R.S., F.R.C.P. LOND.

IN a rather large experience of angina pectoris I have found that competent physicians may have to confess to some uncertainty of diagnosis, and even to occasional errors in discrimination between genuine angina and the various simulations of it. Now there is no error more deplorable than to take a genuine angina for a neurosis; the converse error is plaguy enough. For this reason I have thought it well to consider again the more cardinal points of the diagnosis. If careful attention be given to them the cases of doubt should be very few. On the treatment of the disease I have also something important to say.

At the risk of egotism I must begin with the chief of the postulates concerning the malady, which I laid down about 30 years ago,[1] and which have been confirmed by further experience since. On the continent of Europe and in America these doctrines have made their way rather quickly; among ourselves, after our manner, very slowly. But I observe with some amusement that my medical friends at home are "hedging" one by one. One writer on heart diseases admits, as a curious coincidence, that the symptoms of angina pectoris and of aortitis are identical. Others, forgetful of Ockham's razor, talk of a "dual ætiological explanation." To justify these assumptions, which, I repeat, are necessary for our purpose to-day, I may name, among the authors who have accepted them in France, Josué, Dieulafoy, Wybauw, Vaquez; and in Vienna, Wenckebach, the chief of the First Clinic. In Canada Dr. Klotz and others are with me.[2] In the United States the "Cardiologists" did me the honour of holding a congress to discuss my opinions, when not a few of the leading speakers accepted them frankly[3]; while of adverse criticism there was little, if any. That discussion concluded with the statement that I had "made out a good case." Dr. Ingals then, and since, and in private letters to me, has accepted my interpretation; so I believe, do Dr. Babcock and Dr. Hirschfelder. My first eminent convert in America was no less a man than Dr. J. B. Murphy, who died of the disease.

THE CHIEF POSTULATES.

The chief postulates are: (1) That in the very large majority of cases—say 90 per cent.—angina pectoris is due to disease of the thoracic aorta, and especially of its outer investment wherein lie the sensory end-organs that regulate the blood pressures; the few exceptions I cannot discuss now.[4] (2) That death in angina pectoris is due ordinarily to vagus inhibition; that is, to the shock of the pain. (3) That the coronary arteries and the myocardium have nothing to do with the pain of angina, but much to do with its mortality. In younger persons, in whom the myocardium is healthy, the heart usually survives the inhibition, so that in them angina—as often in the case of syphilitic aorta, for example—may be a terrible if not a mortal disease. I invite you then to entertain for a while these three assumptions, which must serve our purpose for the present, that we may pass on to the diagnosis of the disease; for a disease it is. And by a "disease" I mean no so-called "entity" but a mental concept of a series of symptoms recurring with a fair uniformity.

[1] At the Yarmouth Meeting of Eastern Counties Division of British Medical Association in 1893.
[2] See Trans. Amer. Phys., 1917.
[3] See New York Med. Jour., Feb. 15th, 1922.
[4] See the author's book on Diseases of the Arteries, &c. Macmillan).

Like other diseases, angina may occur in covert or fragmentary forms, or be mimicked by other syndromes. Thus, by reason of latency, partial manifestations, transitoriness, or false resemblances, diagnosis in particular cases may be perplexing. Angina, being often thus transitory or latent, is more common than is generally supposed. As a writer on the subject, my clinical experience may be the larger, but even in its manifest forms there seems to be no lack of cases in private practice, though it seems to be rare in the general hospitals. In illustration of the transitoriness of angina, and so of its being often missed, I will mention some inquiries in our military heart hospitals during the war. There a syphilitic aorta, with or without saccular aneurysm, was no uncommon lesion; in a large ward often as many as half a dozen cases might be found. Of syphilitic aorta in private practice I have watched a few cases throughout in which in the initial stage there was no pain; and in the later stages indeed, pressure effects apart, pain is often absent. The afferent nerves may be destroyed as the spirochæte attacks from without. But on questioning these patients in the heart hospital the majority of them remembered well that they had suffered pain in the past; and when asked to describe it, drew the hand across the upper chest, the common seat of angina pectoris; sometimes adding that at one time it was "pretty bad." But, as I have said, you may give a fairly hopeful prognosis in the angina pectoris of patients, let us say, under 40 or 45 years of age. We must not forget, however, that in syphilis, besides the lesions of the aorta, the heart or its vessels may also be affected.

If, then, a patient under 40 to 50 years of age complains of pain, severe or mild, across the upper thorax, percuss the second right intercostal space and manubrium carefully for any degree of dullness; apply the Wassermann test, and illuminate the aorta by the rays; by these means you may anticipate, and by specific treatment prevent, the extension of an aortic lesion to the valve; a grievous and desperate consequence.

In persons under middle age angina is for the most part of syphilitic origin, probably not mortal unless the heart also be attacked by the infection. Still, cases occur now and then in the course of other infections; most frequently perhaps of influenza, next of rheumatic fever (Poynton and others), and malaria; it may occur in a few other infections, but too rarely for discussion at present. In the severe epidemics of influenza of some years ago I myself saw, and from other physicians heard of, not a few cases of influenzal angina; some of them mortal, and I still see a few sporadic cases. The late Dr. Sansom published three cases with necropsy, when acute aortitis was revealed. But as, in my work on the subject, I have recorded such cases of my own, and quoted others, I will not dwell upon them now longer than to indicate this element of diagnosis, and to urge upon you not to overlook this possible event, one in which prompt and meticulous treatment is imperative. Let the following case suffice as an example: The grown-up son of a colleague of mine in the University, aged about 28, was attacked twice by influenza in 1915. When convalescent from the second attack he began to suffer from severe pains in the chest. Besides his own doctor, he saw three special consultants in London, all of whom, having examined his *heart* very carefully and found no fault with it, therefore assured him that the pains were only "neurotic," that he was to "take a holiday and buck up." He bucked up, and in spite of pain was advised to persist; the consequence was that in an attack of the pain he died suddenly. Time after time cases of secondary angina are thus airily dismissed as neurotic, until in one or other of them thus wrongly interpreted sudden death rudely reveals the mistake.

Tobacco angina in its intenser degrees is a rare disorder; in my own practice I may have seen some half dozen of the severer cases. A full-grown seizure is a terrible apparition; slight touches of tightness and oppression of the chest are not uncommon, but of little relative importance. In a severe case the pain seems to be agonising. Such is the patient's distress

or panic that, while the attack is upon him, one can hardly get a precise description of the chief seat or distribution of the pain. It may be said to dart all over the chest, to run down one or both arms, and to occupy the cardiac area if it does not begin there; a part, that is, which is rarely the seat of angina proper. The "precordial area" of angina is a figment of the text-books; the primary seat of the pain of angina is in the large majority of cases substernal,[5] generally under the upper third of the bone. In a few cases it falls to the lower sternum or the epigastrium. Here, then, we gain one point of the differential diagnosis of tobacco angina from angina proper. Another and a more definite distinction of the tobacco disorder is that, whereas in angina proper the sufferer is held in an awestricken arrest, the tobacco patient writhes, tosses, and paces the room in his agony. A third point is that usually in the tobacco cases the heart is irregular, as with extrasystoles or otherwise; whereas in angina proper its action is not disturbed at all, or shows no more than slight vagus retardations.[6]

In another kind of anginiform attack, in acute thrombosis of a coronary artery, the patient is likewise restless. I have offered an explanation of these cases in my book on Arterial Disease and Angina.

DIFFERENTIAL DIAGNOSIS.

It is said that the most difficult cases to distinguish from angina pectoris are the so-called *neurotic*, though I cannot say that personally I have met with much of this difficulty. Angina proper is rare in women. Osler had no recollection of a case; I have seen, and in my book recorded, a few typical and unquestionable cases in women, all of which ended in death. On the other hand, the so-called "pseudo-angina" is frequent among women, more frequent by far than in men. In this malady the pain is correctly defined, as in its principal seat, precordial, and varies from a tiresome submammary ache to a paroxysm of pain, apparently as it lashes about the chest very distressing, often striking very sharply along the intercostal and left anterior axillary lines, and even down the arm. It seems to be a storm in the brachial plexus, intercosto-humeral, Wrisberg, and phrenic nerves. As in the tobacco angina, the patient is not awestricken, but restless and even vociferous. She writhes under the lashing of the pain; she is not silenced by that sense of the uncanny which generally oppresses the victim even of the milder degrees of angina pectoris. The angina patient again is generally, though not always, pallid or pallescent; the pseudo-anginose are flushed in the face. And these patients are for the most part young, or not elderly, under middle age, or but little beyond it, and the attacks may be determined by annoyance, the catamenial period, or other upset. The heart and pulse are not, as in angina proper, tranquil, but throb rapidly, often with an irregular rhythm. The heart may be felt as if leaping out of the body. Palpitation in angina proper does not occur. Between the attacks the physician will fail to detect any sign of disease or degeneration, or none, at any rate, suggestive of cardio-arterial disease. If such signs can be detected the diagnosis must be revised.

The embarrassment of the physician arises when he has to distinguish between simulations of angina and its slighter degrees (angina mitis), or eccentric manifestations of a true angina. These slighter degrees are more common than is generally supposed, and, ominous as they are, not infrequently pass off without critical phases, and the patient lives to die of some other disease. Of its many eccentric and deceptive manifestations, such as epigastric pain suggestive of flatulence or gall-stone, pains in one or both elbows or hands on sharp walking or ascents, and so forth, I have given many examples in my work on the subject. The consultant, or indeed the family physician, may not happen to witness an attack, especially if it be mild and transient, and he is so far at a disadvantage. In an elderly patient, who described to me momentary sensations of tightness of the chest and arrest while walking, I wished to suspend a verdict of angina; but a medical friend of his told me that while walking with the patient he saw him turn pale, stoop a little, and stop with a look of apprehension on his face. A moment later he stepped forward, saying it was "nothing"; but this description determined the diagnosis; after a while the attacks became more pronounced, and in one of them he died suddenly.

Now it is in this context that I would describe certain mild attacks, far from infrequent in elderly persons, which hitherto have not been disentangled from classical angina. The patients say, and among them I have had three or four medical men who have helped me by careful description of their own cases over long periods of time, that on walking rather quickly a substernal oppression comes on which may amount to a pain. Sometimes it is attended with a slight aching in the deltoid area. In former papers I have given these the name of walking cases. Many elderly persons have told me that if they hasten, as to a train or bus, they feel this substernal tight oppression; indeed, I remember it in my own person when, in past times, I was foolish enough to run. Now is this a covert or rudimentary form of angina? I think not, and for these reasons: Sufferers from angina will perceive a rise in the ground hardly noticed by others, and will not face a hill; but the patients of whom I am now speaking find or notice no difference between level grounds and even steep ascents. When with a medical man thus affected I was discussing the question of retirement from his profession, on account of the stairs he had to climb, he replied that stairs made no difference to him; and sufferers of this class have such immunity. Moreover, although both in angina and in this shadow of angina, the oppression is worst after meals, yet in the false cases recurrence is at all times far more capricious than in the true. It comes and goes. More than one of these patients has told me that if he goes away for a holiday he soon loses the oppression altogether and can walk and climb at discretion. Indeed, even during ordinary work at home the false oppression often disappears for weeks or months and may return, or may not. In true angina there are no such caprices. It stays or it vanishes. My attention has been fixed upon these cases during the last few years only, and, so far, I believe none of them has issued in overt angina. As to the cause of this oppression: it is relieved by passage of wind upwards, but the same is true of real angina. But Dr. Poulton has recently described some experiments, with a colleague, in which a rubber bulb was inserted into the œsophagus and inflated, which inflation gave rise to a substernal oppressive pain described in the same terms as by the patients of the class I have indicated. The explanation may lie not in the distension of an atheromatous and somewhat tender aorta, but rather of the œsophagus by air. Mr. Verdon has given relief in many cases of angina by artificial deflation of the stomach; perhaps some of his cases were of this mimic class? He says also that anginous patients who are distressed by walking may be able to ride a bicycle, an experience which he explains by the relaxation of the abdominal muscles. Of the riding on a bicycle by really anginous patients I know little; elderly men do not often ride bicycles, but I vividly recollect a case of a man a little past middle life, who, after a whole day's fly-fishing with impunity, while bicycling homewards with his son was seized with the first attack of a severe form of angina of which not very long afterwards he died.

Attacks of genuine angina pectoris are apt to occur in the course of another morbid series, which must not be passed over—namely, in the course of high arterial pressures. I do not happen to recall a case in which it occurred as an episode in the course of high pressures due to renal disease, though no doubt it may do so; but of the malady now known as hyperpiesia, it is no very unusual complication, the

[5] On this contrast with the common submammary ache see Dr. John Parkinson, THE LANCET, April 5th, 1919.

[6] That in A.p. the phlebograms and E.K.G. are normal, see McIlwaine, Brit. Med. Jour., Feb. 12th, 1920. It is difficult to make these records during an attack.

attacks being the result of stress upon a "fatigued" aorta. My reason for distinguishing this series of morbid events from angina with normal pressures is because in these cases the prognosis is rather less grave, and the malady more manageable. The aorta which could have tolerated ordinary stresses winces under strain. If the aortic blood pressures can be reduced the vessel will probably recover itself, and complain no more. Sir Richard Douglas Powell has stated, in agreement with me, that the phenomena of angina suggest tension of a tender vessel rather than a disease of the heart.[7] An elderly gentleman, who off and on had been under my care for two or three years for hyperpiesia, one night was awakened by an attack of angina of some severity. This happened two or three years ago; under careful regimen directed to arterial pressures, he has since remained entirely free from attacks. In these high pressure cases put the patient quite at rest in bed, for a week or ten days; during this time the blood pressures will gradually fall, and by appropriate dietetic and other remedies the new peril will probably be averted. But ordinarily in hyperpiesia the anginose symptoms occur on exertion only, and usually, indeed, do not amount to more than a passing substernal oppression. A sudden dyspnœa on mounting hill or stair may be the first manifestation of high arterial pressures of long standing, and more than once such a patient has been sent to me as a case of "angina." Dyspnœa is not a character of angina.

TREATMENT.

This paper is too long already; I must refrain from more clinical chat. What I have to say about treatment can be expressed in a few words. My principle of cure in angina has been, and still is, to treat the case as if it were one of aneurysm—namely, by absolute rest of a duration proportionate to the severity, and the stubbornness, of the case. In a recent case of great intensity and tenacity, in a man of about 65 years of age, I may say that by this method cure has now been established. Not many patients are able, if willing, to betake themselves to bed and to immobility for weeks or months, but those so able have their reward. The patient of whom I speak suffered for the first few weeks so intensely that the mere opening of his bedroom door often brought on an attack; and many were his seizures both by day and by night. He was put to bed; his natural wants were served by the bedpan, his food was made simple and soft, and was carefully administered. Brave, faithful and hopeful through a first period of incessant suffering he then began to feel some mitigation of the attacks in degree and frequency; and after five months of immobility he found himself able gently to move about, and so by degrees to return in a quiet way to his ordinary life. He has not had an attack for a long time past; the sore of the aorta was healed. Happily few cases need so long a restraint as this; few patients perhaps have the easy mind, and the means, the strength of will, and the mental resources, to sustain them through such a discipline. The patient is allowed to read peaceful books and journals, but not to play games nor to entertain guests. Dr. Pratt, of Boston, kindly wrote to me to say that for 10 years past, in cases of angina pectoris, he had followed my method of complete rest with excellent results. There are, of course, many other means, such as the nitrites, to be used as subsidiary to the main purpose; and I have recommended a liberal use of atropine to ward off vagus arrest. But the principle of treatment I have advocated is simplicity itself—namely, so much complete rest, with due modification of diet as may be required for the healing of the injured vessel. Treat angina pectoris then as you would an aneurysm, but with far brighter hope of a successful issue. Of the results of Jonnescu's operation of cervical sympathectomy, in order to throw the aortic afferents out of gear, I know nothing; but the proposal is a reasonable one.

[7] See THE LANCET, May 1st, 1915.

An Address
ON
SOME GYNÆCOLOGICAL OPERATIONS IN RELATION TO LIFE ASSURANCE.

A Paper read before the Assurance Medical Society on May 2nd, 1923,

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IN view of the extension of the practice of life insurance and of sickness insurance among women, and of the great increase of gynæcological operations during the last 30 years, it is natural that medical referees of insurance companies should wish to know the influence of such operations on the subsequent health and on the expectation of life. For many years I have been deeply interested in the question of after-results of operative treatment; and it appeared to me that a good deal that I had learnt in the course of my investigations had a direct bearing on the subject. For about 15 years I followed up systematically every case that I could trace among my first thousand gynæcological operations; I wrote to them, interviewed them, and examined them, and made exhaustive analyses of the data obtained. There were 41 operative deaths in the 1000 cases; of the 959 who survived I was able to trace 771, or just 80 per cent. The results were published in 1910 in several issues of the *Journal of Obstetrics and Gynæcology of the British Empire*, and afterwards in book form.[1] Since then I have remained interested in after-results, though I have not been able to follow them up in the detailed, and I may say laborious, fashion in which I studied the first thousand. A great deal of what I now have to say is based on the work just referred to, amplified, and, when necessary, corrected, by subsequent experience of an additional 3000 cases.

OPERATIONS CLASSIFIED.

Obviously the value of the after-history depends primarily on exact knowledge of the nature of the operation; and I had to adopt a classification suitable for this particular purpose. I give it here (Table I.),

TABLE I.

Operation.	Cases.	Cases traced.
1. Unilateral salpingo-oöphorectomy—		
A. For tumours	122	98
B. For inflammatory disease	44	29
C. For extra-uterine pregnancy	52	38
2. Bilateral salpingo-oöphorectomy—		
D. For tumours	43	33
E. For inflammatory disease	98	63
F. For extra-uterine pregnancy	18	13
G. For uterine fibroids	2	1
3. Abdominal hysterectomy—		
H. For fibroids	76	63
I. Fibrosis	11	9
J. For carcinoma	6	4
4. Hysterectomy and unilateral salpingo-oöphorectomy—		
K. For fibroids	64	54
L. For fibrosis	10	8
5. Total extirpation—		
M. For ovarian tumours	14	10
N. For fibroids	69	52
O. For inflammatory disease	24	18
P. For carcinoma of the uterus	14	13
6. Conservative operations for fibroids—		
Q. Abdominal myomectomy	18	12
R. Myomectomy and ovariotomy	6	5
7. Operations for displacements—		
S. Hysteropexy and myomectomy	27	23
T. Hysteropexy	220	170
U. Hysteropexy and ovariotomy	62	55
Total	1000	771

[1] A Study of the After-results of Abdominal Operations on the Pelvic Organs. London: Baillière, Tindall and Cox. 1910.

with the number of cases of each kind traced, as it may be convenient to refer to individual groups by their index letters.

Exploratory Operations Disclosing Malignant Disease too Far Advanced for Removal.

There is a group of cases, not included in Table I., to which I may make a reference—namely, exploratory operations where malignant disease is found, too far advanced to allow of removal. Experience shows that the expectation of life after such an operation mostly ranges from two to six months. I suppose that these cases would never come before an insurance company, for the first time, after the operation had taken place; but an insurance company might conceivably be interested in a patient for whom such an operation became necessary later on, and the question of the expectation of life might then arise. If that were so, it would be well for the medical officer to bear in mind that even the most experienced operator is not infallible.

I may instance two cases. Many years ago I operated on a patient; I found what I took to be extensive ovarian carcinoma and closed the abdomen. I wrote to her, among the others, when tracing after-results, and expected to hear that she had passed away. Instead, she answered my invitation for an interview by turning up; and she told me, with what seemed like a pardonable pride at scoring off me, that another surgeon had operated and had removed the tumour, and that she was now perfectly well. In the second case my rôle was reversed. One of the best and ablest of the surgeons in the North of England operated and found what he regarded as inoperable carcinoma, and the patient was given a few months to live. Three years later I saw her, and removed what proved to be extensively adherent but benign bilateral ovarian tumours. The patient had become wasted almost to a skeleton; and she gained 30 lb. in weight within three months of the operation.

CASES WHERE DEFINITE OPERATION WAS PERFORMED.

Passing on now to the main subject of this paper—namely, cases in which some definite operation has been done—it will be convenient to take separately two important questions: (1) What is the expectation of life after abdominal operations? (2) What is the state of health after these operations?

1. *What is the Expectation of Life After Abdominal Operations?*

For an attempt to formulate an answer to this question we must obtain the most exact information available as to the conditions present at the time of operation.

Carcinoma.—The most important point is whether malignant disease was present and where. After ovariotomy for ovarian carcinoma, even if the growth appears to be completely removed at operation, there is an appreciable risk of recurrence. I cannot give precise figures for this; I can only state my impression that the risk may be put down as about 25 per cent. In the case of hysterectomy for cancer of the cervix, the risk of recurrence is much higher. Many statistics have been published, and they vary enormously; moreover, the value of the data is seriously impaired by the failure of many operators to distinguish between the results of operations in early cases and those in advanced cases. My belief is that if we put down the recurrences in early cases as 30 per cent. and those in advanced cases as 75 per cent., we shall not be over-estimating the risk. On the other hand, hysterectomy for cancer of the body of the uterus has a much more favourable outlook; judging from my own experience, I should say that the chance of recurrence may be put down as 10 per cent. for all cases, with a rather higher figure for the more advanced and a lower figure for the early ones. After a hysterectomy for chorion-epithelioma the chances of metastasis and recurrence are very great, and such a patient must be regarded as a "bad life." Sarcoma of the uterus is much rarer than carcinoma; and I know of no data concerning its recurrence. My impression is that in this respect it might be classed with carcinoma of the body of the uterus.

Benign Tumours.—When bilateral ovariotomy has been done for benign ovarian cysts, there is no fear of recurrence, and the expectation of life may be regarded as being nearly as good as it is in the case of the average normal woman. I put in the qualification "nearly" for two reasons. In the first place even pathological diagnosis may err; and I have known several cases where the pathological report on ovarian tumours removed pronounced them to be benign; yet the patient developed obvious abdominal recurrence of a malignant character later on. It must be admitted that ovarian tumours sometimes show histological characters on which experts may express quite divergent views. Thus a cystic adenoma may closely resemble an adeno-carcinoma; a benign papilloma may be very difficult to distinguish from a malignant one, insomuch that the sequel alone shows which it is. If there is no recurrence we say it was benign; if there is recurrence we say it was malignant. I recall also a case of a huge ovarian fibroma, weighing 30 lb., which I removed from a patient aged 60; when I showed the specimen with slides, at the Royal Society of Medicine, some members of the pathological committee expressed a confident view that it was sarcoma. Others took the same view as I did, that it was fibroma. The patient lived over 13 years after the operation, and died recently without any signs of recurrence.

I should certainly advise insurance medical referees to be cautious in accepting as a first-class life a patient who has had an ovarian papilloma removed.

My second reason for the qualification of "nearly" is that a patient who has had an abdominal operation of any kind has a small, but appreciable, liability to further trouble. I shall deal with this more fully when speaking of after-health. A patient who has had a unilateral ovariotomy done carries with her the two risks just considered—that of incorrect diagnosis, and what I may term the "general operative sequela risk." She runs a third risk, due to the fact that she still possesses an ovary. This point also will be dealt with more fully under "after-health." Hysterectomy for benign conditions, such as uterine fibromata, uterine fibrosis, and chronic metritis involves no consequences beyond the "general operative sequela risk," and even this is less than is the case after other operations. Therefore, as far as this factor is concerned, I should consider that such a patient could quite well be accepted as a first-class life.

Tubal Inflammatory Conditions.—In this category we may include not only salpingitis, pyosalpinx, tubo-ovarian cysts, and tubo-ovarian abscess, but also cases in which an operation has had to be undertaken for a ruptured extra-uterine pregnancy. In all these cases the "general operative sequela risk" is higher, because the inflammatory condition exaggerates the liability to trouble arising from adhesions. I have met with or known of several cases of intestinal obstruction following operations for the removal of pus-tubes, after an interval of one to three years. When the operation is unilateral there is a quite considerable liability to subsequent trouble in the remaining appendages. It can be stated, however, that any sequel of the one kind or the other is likely to show itself within the first five years after operation; and if at the end of this time the patient feels well and the pelvic condition appears to be normal, I should regard her as eligible, *ceteris paribus*, for acceptance as a first-class life.

All the above operations involve the removal of organs, and one further general observation may be made with regard to them—namely, that operations for the removal of the uterus or of both ovaries eliminate an important risk to which the average normal woman of child-bearing age is liable—namely, the risk of child-birth. I suppose that from the insurance point of view a woman who has had this factor eliminated would, other things being equal, be

accepted for insurance purposes on much the same footing as a man.

Expectation of Life After Conservative Procedures.—One class must be taken by itself—namely, myomectomy for fibroid tumours. Here the general operative sequela risk is increased by the possibility that other fibroid tumours may develop. The remaining conservative procedures can be grouped together; they would include operations for the rectification of displacements, salpingostomy, and the resection of ovarian cysts. The general operative sequela risk in all these cases is low, and the patients may be considered, from the insurance point of view, as being practically normal women.

2. *What is the State of Health After Abdominal Operations?*

General Health.—In my investigation on after-results I made careful inquiries as to the general health after operations; I grouped the replies into three categories: (1) general health very good; (2) health moderate, but better than before operation; (3) health poor, or worse than before operation. The insurance referee is not interested in the comparison of the health before and after operation; he wants to know only the present standard of health. I had comprehensive tables showing the percentage of cases in each group, worked out for each one of the different types of operation (A to U). In Table II. I shall condense results.

TABLE II.

Health.	A.B.C.		D.E.F.M.O.		H.I.K.L.N.		Q.S.T.		Total.	
	No.	%	No.	%	No.	%	No.	%	No.	%
Very good.	141	65·4	110	77·4	132	73·4	143	76·4	526	72·5
Poor or moderate.	75	34·6	32	22·6	48	26·6	44	23·6	199	27·5
Total ..	216	—	142	—	180	—	187	—	725	—

It will be seen that of 725 total cases in which data were available, 526, or 72·5 per cent., expressed themselves as being in very good health. In individual groups of operations the results varied; and it is striking that the highest percentage of cases of very good health occurred in the cases where the appendages of both sides were removed; whilst the lowest percentage was in cases where the appendages were removed on one side only. This seems to show that by saving the appendages of one side, while we preserve function, we add to the possibilities of subsequent ill-health. The conservative operations, ventrofixation and myomectomy, have also a very high percentage of very good health; and the operation of hysterectomy for benign conditions is not far behind.

State of the Memory.—This is a minor, but none the less interesting point. Years ago I came across the statement that the memory was sometimes affected after operations; and though my impression was that this must be very rare, I questioned my patients closely. I was surprised, when working out the figures, to find that the memory appeared to be

TABLE III.

Operation.	Average duration.	Memory affected (per cent.).
Hysterectomy for carcinoma ..	1—1½ hours.	50
Removal of inflamed appendages .	½ hour.	32
Hysterectomy and myomectomy for fibroids	½ hour.	27
Ovariotomy	20 min. to ½ hour.	26
Hysteropexy	½ hour.	18

affected in about 25 per cent. I divided my data into five groups according to the type of operation; and it then seemed evident that the factor that had the most influence was the duration of the operation. This will be made clear by setting out in parallel columns (Table III.) the average duration of operation in the five groups, and the percentage of cases in each group in which the memory was affected.

General Operative Sequela Risk.—I have referred to this when discussing the expectation of life; and it will be profitable to look into it in more detail. Twenty-three patients of those that I traced died later: ten from recurrence of malignant disease, two from intestinal obstruction, one from generalised miliary tuberculosis; these 13 may be said to have died of sequelæ of the operation. The remaining ten were from independent causes: two of pneumonia, two by suicide, and one each of carcinoma of the breast, carcinoma of the sigmoid, carcinoma of the rectum, cholera, uræmia, and pulmonary œdema. At the time of my investigations, in 1910, I had records of 64 cases in which further operation was required. For the purpose of this paper I have gone over the cases again and traced an additional 20 cases from among the same original cases investigated, in which operation was required after those results were published. This makes altogether 84 cases; and it will be instructive to consider them in relation to the nature of the first operation (Table IV.).

TABLE IV.

Operation.	Cases.	Later operation.	Percentage.
Unilateral salpingo-oöphorectomy ..	98	17	17·3
Tubal disease or for tubal pregnancy ..	67	17	25·3
Bilateral ovariotomy for tumours ..	43	3	7·0
Bilateral salpingo-oöphorectomy for tubal disease or for tubal pregnancy	94	16	17·0
Hysterectomy for fibroids and fibrosis..	186	7	3·7
Myomectomy	40	7	17·5
Operations for uterine displacements ..	225	17	7·5
Total	753	84	—

We must distinguish between operations undertaken for conditions which are direct sequelæ of the first operation, and those that are necessitated by conditions independent of it.

Unilateral Ovariotomy.—Three patients developed a hernia of the scar: one had intestinal obstruction, presumably from adhesions; and three developed malignant disease: one of these had a large inoperable tumour, and a colotomy was done; the second had a large adeno-carcinoma of retroperitoneal origin, weighing 4¾ lb.; and the third had recurrent growths in both iliac fossæ and in the scar. In all three cases the tumour first removed was regarded as innocent, and they illustrate forcibly the caution previously uttered as to the possibility of pathological error. The scar hernias and the intestinal obstruction are direct sequelæ; two of the recurrences occurred within a year, and may also be regarded as sequelæ. The retroperitoneal adeno-carcinoma is more doubtful, as it did not appear until seven years had elapsed. Of the remaining ten cases, one had an extra-uterine pregnancy on the other side; five developed a second ovarian tumour; two had tubal disease of the other side; and two required hysterectomy for fibroids. The net result in the groups is: three scar hernias; four other sequelæ; and ten independent conditions.

Unilateral Salpingo-oöphorectomy.—Among these cases there were two scar hernias; and there were two other sequelæ in the form of an infected stump adherent to bowel. Of the 13 independent conditions, two operations were for a second ovarian tumour; four for tubal disease on the other side; four for tubal pregnancy on the other side; one each for uterine fibroid, uterine fibrosis, and uterine displacement. It will be noticed that, in these two groups together, out of 165 cases there were no fewer than 18, or 10·9 per cent., in which there was trouble later on in the remaining ovary or tube—namely, seven ovarian tumours, six cases of tubal disease and five of extra-uterine pregnancy.

Bilateral Ovariotomy.—Of the three subsequent operations, two were for scar hernia, and the other was for a necrotic tumour incarcerated in the pelvis among dense adhesions. Its necrotic character made it impossible to determine its nature; we may assume that it was an independent condition, rather than a sequela.

Bilateral Salpingo-oöphorectomy.—Here there were five cases of scar hernia and five other sequelæ—namely, intestinal obstruction, an operation for the separation of adhesions, and three cases of an inflammatory focus in the stump. The independent conditions were: Uterine fibroids, two cases; cystic degeneration of one ovary that had been preserved, two cases; hysterectomy for fibroids; and hysterectomy for carcinoma of the cervix. In the last case the hysterectomy was done 26 years after the previous operation.

Hysterectomy for Fibroids.—Four of the seven later operations were for sequelæ—namely, one scar hernia; a case of separation of adhesions; an abscess of the cervical stump, causing an abdominal sinus; and an infection of the cæcum leading to perforation, and necessitating an enterorrhaphy. The independent conditions were a case of ovariotomy; a gastro-jejunostomy for duodenal ulcer; and an exploratory for what appeared to be carcinoma of the sigmoid and bladder. This patient lived for years after in good health, so the diagnosis became doubtful.

Myomectomy.—There were two scar hernias in this group. Of the remaining five operations, four were hysterectomies for recurrence of fibroids; these must be regarded as coming into the category of sequelæ. The other was a hysterectomy for fibrosis, which was an independent condition.

Operations for Displacements.—This group presented four scar hernias and five other sequelæ—namely, reflxation of the uterus for recurrence of the displacement. The eight independent operations were as follows: Two for appendicitis, two hysterectomies for fibroids, a double ovariotomy, a single ovariotomy, a case of tubal disease, and an exploratory operation for what proved to be an inoperable carcinoma.

We may now try to express statistically the risk that further operative procedures may be necessary. It is certain that the general operative sequela risk is more definite than the risk of independent conditions requiring operation; but presumably, from the actuarial point of view, they must all be taken into consideration. The preceding results are expressed in Table V.

TABLE V.

—	Cases.	Scar hernia.		Total operations for sequelæ.		Operations for independent conditions.		Total.	
		No.	%	No.	%	No.	%	No.	%
Unilateral ovariotomy	98	3	3·0	7	7·1	10	10·2	17	17·3
Unilateral salp. oöph.	67	2	3·0	4	6·0	13	19·4	17	25·3
Bilateral ovariotomy	43	2	4·6	2	4·6	1	2·3	3	7·0
Bilateral salp. oöph...	94	5	5·3	10	10·6	6	6·4	16	17·0
Hysterectomy for fibroids	186	1	0·5	4	2·1	3	1·6	7	3·7
Myomectomy	40	2	5·0	6	15·0	1	2·5	7	17·5
Operations for displacements	225	4	1·7	9	4·0	8	3·5	17	7·5
Total	753	19	2·5	42	5·5	42	5·5	84	11·1

Salp. oöph. = Salpingo-oöphorectomy.

It would thus appear that for abdominal operations in general the operative sequela risk is the same as the risk of further independent conditions requiring operation, each standing at 5·5 per cent.; and the total risk is 11 per cent. But with some operations the risk is very high, being as much as 25 per cent., or 1 in 4, for unilateral removal of diseased appendages; and 17 per cent., or 1 in 6, for unilateral ovariotomy, bilateral removal of diseased tubes, and myomectomy; whilst at the other end of the scale the risk after hysterectomy for benign conditions is 3·7 per cent., or 1 in 15; and it is about twice as great after bilateral ovariotomy and operations for displacement.

It is perhaps necessary to bear in mind that if we took any thousand average healthy women of 25 years of age, and could trace their lives for 20 years, we should find an appreciable number at the end of that time who had had to undergo operations of different kinds. If we could obtain figures representing this primary risk and deducted the numbers from the figures in my tables we should get a close approximation to the real risk of further operative procedures that results from abdominal operations. I may further point out that the figures that I have given probably indicate the maximum risk; for they refer to my earlier cases. With improvements in operative technique, and especially the greater perfection of asepsis, the incidence of scar hernias and of sinuses due to septic foci has greatly diminished, and I have no doubt that if I could trace the detailed history of my last thousand cases, the number requiring subsequent operation would be markedly less.

SUMMARY.

I may summarise my observations as follows:—

Health after Operations.—About 70 per cent. of patients regain normal health. The highest proportion is found in cases of conservative procedures and of complete removal of organs. Unilateral operations on the uterine appendages show the lowest proportion of complete recoveries, the chances of complete cure being subordinate to the preservation of functions of womanhood. There is a disturbance of the nervous system, shown especially by the affection of memory, and in most cases temporary, in a proportion of cases, varying from 18 per cent. of cases where the operation was of short duration to 50 per cent. in the case of long operations. There is a risk that further operations may be required, which may be put down as a 10 per cent. risk, comprising direct sequelæ of the operation and independent conditions in about equal proportions. The risk is greatest after operations for inflammatory disease of the tubes and after unilateral operations on the tubes and ovaries; and it is lowest after the operation of hysterectomy for benign conditions.

Expectation of Life.—Cases of operation for malignant disease must be regarded as bad lives, the risk of recurrence varying from 10 to 75 per cent. After operations for inflammatory disease the expectation of life is fairly good, but it is impaired by the liability of sequelæ. Patients who have had benign tumours removed may be considered as good lives, as the chance of complications that may lead to a fatal result is negligible. Lastly, patients who have had operations that prevent further pregnancy have had an adverse factor in the expectation of life eliminated.

CHELSEA HOSPITAL FOR WOMEN.—The fifty-second annual meeting of the governors was held on April 24th, Sir Louis A. Newton presiding. The Council's report for the past year stated that the number of patients treated was 848, an increase of 100 compared with 1921. This increase had been effected by closing one floor at a time for annual cleaning instead of both together, and it was the chief factor in a reduction of the cost per patient per week from £4 2*s.* 7*d.* to £3 9*s.* 2*d.* During the year 533 major and 302 minor operations were performed. The out-patients' fee had been reduced from 2*s.* to 1*s.*, except for the first attendance. Only half the beds can be used for patients until the staff can be moved from the others to the proposed nurses' home. A sum of rather more than £30,000 is needed for building the home; £18,000 is in hand. The chairman, in moving the adoption of the report, made a strong appeal for the balance required for the nurses' home fund, stating that it would enable the hospital to treat some 700 additional patients yearly. A paying home for patients no longer able to pay the high fees of nursing homes was greatly to be desired and could be built in the hospital grounds. The Voluntary Hospitals Commission and the Combined Hospitals Appeal had done much to restore the financial position of the hospital, but continued efforts were needed.

THE TREATMENT OF THE CLAVICLE FRACTURED BY INDIRECT VIOLENCE.

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BEFORE describing the method I adopt in the treatment of such fractures of the clavicle as have been caused by indirect violence, it would be as well to give a short description of the clavicle and scapula, and a brief account of their mechanics.

The clavicle is curved in shape, so that the inner two-thirds are more or less rounded in form, while the other third is flattened from above downwards. The inner segment is curved to enable a different portion of that arc to impact on the upper surface of the entire length of the first costal arch, and as it ascends gradually upwards becoming more abrupt posteriorly when the shoulder is carried from an extreme forward to an extreme backward position. In the various positions of the shoulder the clavicle transmits force in a vertical direction to any portion of the entire first costal arch and, if sufficient downward pressure be exerted, the clavicle impacts and transmits pressure to a part of the second costal arch. The inner end of the clavicle is held down by powerful ligaments, and forms the fulcrum of a lever, the length of which corresponds to the entire clavicle. The outer third, which is thrown forwards in order to bring the scapula and arm into a useful working relationship with the thorax, is flattened in consequence of the strain exerted upon it posteriorly by the trapezius, and anteriorly by the deltoid, ossification taking place in the line of strain. This portion of the bone, besides performing the purpose of a lever, serves as the junction of the deltoid and trapezius muscles, and is directly continuous and identical in function with the acromion and the spine of the scapula. The two bones—namely, the clavicle and the acromion—move on one another, on an inclined plane, in order to enable the glenoid cavity to be brought into relationship with the humerus and clavicle. The relationship of the scapula to the clavicle and humerus is that of an intermediary, the scapula being to some extent a part of the clavicle, with which its spinous process is continuous in direction and function. The scapula is supported partly by muscles, and to a far greater extent by the powerful coraco-clavicular ligaments, which connect the base of the coracoid process to the clavicle. It will be seen that should a fracture of the shaft of the clavicle take place proximal to the coraco-clavicular ligaments the scapula, lacking the stay of a sound clavicle, is rotated forwards by the action of the serratus magnus and pectoralis minor muscles, by its own weight, and by that of the arm which helps in exaggerating the displacement of the scapula and outer fragment of the clavicle in a downward, forward, and inward direction. The inner fragment of the clavicle is kept in position to some extent by the rhomboid ligament, its outer extremity being displaced upward by the action of the sterno-cleido mastoid muscle and by the elastic pressure of the first costal arch, the shoulder dropping forwards and downwards.

Principle of Replacement of Scapula.

The principle upon which treatment must be based is the replacement of the scapula in its normal relationship to the clavicle and thorax, the tilting of the inner fragment being taken into consideration. While the placing of the patient in the supine position tends to do this, it only effects it very imperfectly because of the tilting alluded to. It is a common fallacy to imagine that accurate apposition of the clavicular fragments can be secured in this way. The method generally adopted is to endeavour to so fix the arm in position in relation to the thorax that a thrust in an upward, outward, and backward direction is exerted through the humerus on the scapula. The objections which I take to this method are that it does not effect the purpose for which it is intended, that it puts the arm out of commission for a long time, that the muscles waste and the joints become stiff, that union is delayed, and that the position, if the treatment is carried out with sufficient thoroughness to serve any useful purpose, is uncomfortable and painful.

Technique.

The method which I adopt is to secure as thoroughly as possible the proper relationship of the fragments to one another by fixing the scapula in position by strapping, the arm being left quite free. By this means recovery is very rapid and painless, the arm suffers no depreciation in function, and union takes place rapidly and in good position.

The common seat of fracture is in the middle third of the bone, and the position assumed by the patient is typical of the lesion. He stands with his head bent down towards the fractured side, in his effort to relax the pull of the sterno-cleido mastoid of the inner fragment, whilst the hand of the sound arm supports the elbow on the damaged side, in order to relieve the drag of the arm on the outer fragment. The principle involved in this method of treatment depends on the control of the outer fragment by means of the intermediary, the scapula. In order, therefore, to reduce the deformity, raise the arm on the injured side to a right angle with the body. This brings the outer fragment up to the level of the inner fragment. Stand behind the patient and draw back both shoulders firmly, so that the scapula is pushed back as far as possible, the arm still being kept raised at a right angle. Having effected reduction of the deformity in this manner, apposition of the fragments is secured by fixing of the scapula in the position in which it now lies. Do this in the following manner. With the injured arm still raised at a right angle (Fig. 1), place a thin layer of Gamgee tissue or cotton-wool in the axilla. Then fix the end of a long strip of adhesive plaster to the top of the shoulder-joint, just over the acromion, and bring it up under the axilla to the front where it crosses over the top of the shoulder at the acromial end of the clavicle. This strip, which encircles the shoulder-joint, is brought diagonally across the scapula to below its angle. Take a second strip of plaster, about 1½ in. in width, and start from just above the nipple and bring it with firm pressure over the clavicle to below the angle of the scapula (Fig. 2), much in the position of an ordinary brace. Apply a third and fourth piece in the same way, slightly overlapping each other, and covering the entire surface of the clavicle (Fig. 3). Lower the arm gently, and allow the patient to dress himself in the ordinary way. No support is required beyond that obtained by means of an ordinary sling, which is worn for the first two days to prevent the weight of the arm causing discomfort. The use of the arm should be restricted to underhand movements, though one rarely finds much desire on the part of the patient to do more. The services of a skilled masseur are obtained, and the injured parts are massaged daily for at least a week. I should mention that the movements of massage can be effectively performed over the plaster. At the end of about ten days the sling can usually be discarded, and the patient encouraged to employ the arm for more general use. The strapping should be renewed at the end of the first four days, and again from time to time as occasion demands. By the end of a fortnight all movements are usually possible, but care should be taken to avoid the increase of undue strain, as in lifting or pushing heavy weights. The parts should be kept supported by strapping for at least three weeks, even though no pain be experienced on movement. The advantages to be gained by adopting this method over the mode of treatment generally in use are firstly, entire freedom from that pain which is caused by keeping the arm and hand rigidly immobile, since the cramp during the first few days is often intense and far exceeds any suffering that may be experi-

enced at the seat of fracture. In addition, the subsequent stiffness of the elbow and forearm is no longer experienced, and as the arm is in use muscle wasting is avoided when the union is complete. The patient is able to dress himself normally during the entire period of convalescence, and can use the arm on the injured side for writing, feeding, and such simple actions, without fear of harm. Again, the period of disability is considerably lessened. The average period of disability according to other writers

FIG. 1.

First strip of plaster in position, with cotton-wool in axilla.

is put down as being between six and eight weeks. The average period in 20 of my cases, taken at random, was 20 days. When possible the patient should spend 12 hours flat on his back, especially where reduction is difficult, as the scapula being unable to rotate forward, the bones gradually drop into position and the deformity lessens.

A Series of Ten Cases.

I quote various cases as examples:—

CASE 1.—Amateur rider, steeplechasing, had a severe fall, the horse being killed. Fracture of left clavicle sustained, with much deformity. Reduced and put up by me the same evening, massage being ordered. A recent letter from this patient states: "I did the hat trick with my first three rides 15 days after the accident, on C——, B——, and A——, two of them very hard pullers too." The shoulder was kept strapped for another three weeks.

CASE 2.—Steeplechase jockey, fractured left clavicle at Sandown. Displacement very definite at the junction of the inner and middle third. Treatment by strapping and massage. He won a hurdle race within 14 days of the injury, and continued to ride as before.

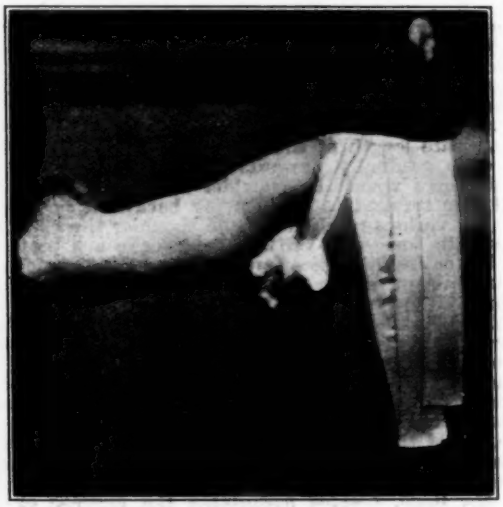
CASE 3.—Fell whilst "schooling" and fractured left clavicle. When seen that evening was in great pain, as he was confined in bandages according to Sayre's method. Removal of these with substitution of strapping entirely relieved the pain. Massage ordered. Was riding over fences within 21 days, and won a race.

CASE 4.—Flat race jockey, fell during a race at Windsor and fractured the right clavicle. Was attended to on the course, and fracture put up in usual method. I saw him on the day of accident, strapped the shoulder, and ordered massage. Rode and won a race 17 days after the injury without ill-effects. He had some pain as the horse "yawed" at the post. Was strapped afterwards, but continued to ride regularly.

CASE 5.—Flat race jockey, sustained complete fracture of the left clavicle from fall of his horse in a race. I saw him six days after the accident; he was then in considerable pain, his arm being bound to the side in the orthodox manner. Deformity of bone still present at junction of middle and outer third. Bandages removed, fracture strapped, and massage ordered. Two days later the pain had entirely gone, and the arm moved comfortably. Within 20 days he was able to ride gallops, and rode in a race a week later.

CASE 6.—Flat race jockey, fractured his left clavicle at Folkestone, and was attended to on the course. Seen same day as accident. Bandages had slipped, and the man was in great pain. Strapping applied, and massage ordered, which speedily relieved the pain. Restrapped in three days. Uneventful recovery; patient was riding within three weeks of the date of injury.

FIG. 2.



Second and third strips of plaster in position.

CASE 7.—Fell whilst riding in steeplechase and fractured right clavicle. Seen day following accident. Had been put up at neighbouring infirmary in usual manner. Right hand and forearm swollen, and bruising over the seat of fracture. Fracture comminuted. Rest in bed, flat on his back for a few days advised. The bandages being removed, the shoulder was strapped and massage ordered. Pain in the forearm disappeared after the first day's massage, and swelling at seat of fracture gradually subsided; he was up and about in a week's time. He was perfectly sound in three weeks, but did not ride steeplechases for a month.

CASE 8.—Flat race jockey. Sustained complete fracture of right clavicle from his horse falling dead at Lincoln. Seen day after accident. He had been put up in the usual manner on the course. Complained of great pain in hand and forearm. The bandages were removed and strapping applied, and massage ordered. He made a normal recovery and was riding within 18 days of the accident.

CASE 9.—Steeplechase jockey, fell in hurdle race at Gatwick. Fractured right clavicle. Seen same day. Attended on the course. Comminuted fracture caused great pain; patient had a lump on the forehead. He was dazed, and vomited in the consulting-room. He was kept flat on his back for five days, the fracture being strapped and massaged as usual. At the end of a week, the effects of the concussion having passed off, the patient was allowed to get about as usual. He made an uneventful recovery, though the risk of falling prevented me from permitting him to participate in races for a month.

CASE 10.—Flat race apprentice, fell and fractured clavicle. Seen day after accident. Had been put up on the race course in the usual manner. Considerable displacement, much bruising, and in considerable pain. Patient was kept on his back for two days and shoulder strapped. Twenty-three days from date of accident I received a letter from his master saying that the boy was apparently sound, and had been riding as usual.

Commentary.

I have selected those cases whose subsequent history I have been able to watch. The quick recovery the majority have made is partly due to the healthy life they have to lead. The strain on

both shoulders in riding races, or fast gallops, is very severe, and for that reason I have taken riding as a test of soundness. All of these cases I have quoted showed unmistakable evidence of the lesion, with typical displacement, whilst in some the deformity was very considerable. It has been suggested that the freedom allowed the arm might tend to increase the deformity, or even lead to non-union. The results, however, as regards the ensuing deformity are no worse and no better than those obtained by

FIG. 3.

Four strips in position, covering entire surface of clavicle; massage can be performed over the plaster.

other methods, whilst in some 200 cases treated in the manner described I have seen only one case of non-union. This case, a jockey, was brought to me two days after the injury. He had removed the bandages within a few hours of being put up on the race course, and had used a sling. The inner fragment was lying uppermost, parallel with the sterno-mastoid, and the outer fragment showed every inclination to come through the skin. He had, it appears, been kicked by another horse on the clavicle, after it had been fractured by his fall. He was kept five days flat on his back, and I was able to bring the fragments into fair position. The radiogram showed extensive comminution, and a considerable gap existed between the two fragments. Sir Arbuthnot Lane saw him with me, with a view to operative measures, but he decided to leave it alone. The man now has fibrous union, with palpable movement at the seat of fracture. He has a strong, sound arm, and is still following his profession of steeplechase jockey.

I am convinced that experience will soon lead others to adopt this method, in preference to that so commonly employed, but as Zollner said: "The ancient wall of belief requires much siege artillery for its demolition," and a belief in the teachings of our student days is not easily upset.

Seymour-street, W.

OPHTHALMIC HOSPITAL, JERUSALEM.—The report of the Committee for 1922 records an extension of the hospital buildings which was opened for work last July, and by means of which the work in the out-patient department has been greatly facilitated. The number of new cases seen was 12,651, and the number of new cases admitted to hospital was 1268. The great bulk of the work, as in all eye hospitals in the East, consists in the treatment of trachoma and of acute conjunctivitis, but the refraction cases show a steady increase in numbers. In 1919 there were only 269. Last year the number relieved with spectacles had risen to 1148.

AN INVESTIGATION OF RENAL FUNCTION IN PATIENTS WITH RETINITIS AND HIGH BLOOD PRESSURE.

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AND

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RETINITIS associated with high blood pressure and renal disease has long excited the interest of physicians. The importance of the condition in diagnosis and prognosis is well known, but the nature of the process, its cause and method of production, is very imperfectly understood. For this reason we have thought it might be of interest to examine the data of those cases of retinitis in the London Hospital in which the results of investigation by the newer methods of estimating renal function were available. The number of patients with retinitis so examined was 21, but the result in two of these we have discarded, as they were examples of the condition occurring in pregnancy, a retinitis generally recognised as having a different course and significance. This report consists, therefore, of an analysis of 19 cases.

Scope of Inquiry.

It is to be clearly understood that in this paper we are not dealing with acute nephritis, subacute nephritis, or chronic nephritis with gross œdema (chronic parenchymatous nephritis). By subacute nephritis we mean those cases in which, following an acute attack, symptoms fail to clear up and the patients either pass into a state of chronic poor health or suffer from repeated exacerbations of the acute condition. All these forms of nephritis may lead to the occurrence of retinitis. No example, however, of any of these forms happened to occur in this series, and we are not concerned with them. They are all easily separated, by purely clinical methods, from that group of cases with high blood pressure, albuminuria, and little or no œdema somewhat indiscriminately labelled "chronic interstitial nephritis" and "cardio-renal disease," to which all our 19 cases belong.

Differentiation of Arterio-Sclerotic and Renal Retinitis.

During the course of the collection of these cases a discussion took place at the Royal Society of Medicine on the differentiation of arterio-sclerotic and renal retinitis.[1] In considering the results our first proceeding, therefore, was to separate our cases into two groups, one in which gross disturbance of renal function was evident and the other in which no such gross disturbance was found. The particulars of the cases in the two groups so separated are shown in Tables I. and II. Let us now analyse the data of these two groups of patients separated, it is to be understood, solely on the results of the tests of renal function. In Table I. are listed the particulars of nine patients showing gross disturbance of renal function. In all, the blood-urea was much increased, the phenolsulphonephthalein excretion markedly diminished, and the urea-concentration test showed very feeble power to concentrate urea. Fixation of the specific gravity of the urine occurred in six of the seven cases in which this examination was carried out. Table II. shows the particulars of ten cases in which no such gross disturbances of renal function were found. In only two of these is the figure for blood-urea above the normal; phenolsulphonephthalein excretion, while generally diminished, is notably different from the figures in Table I., and the urea-concentration test, in striking contrast to the findings in the other group, gave in only one case a figure below the normal

[1] THE LANCET, 1922, ii., 1222, 1275.

2 per cent. In no case did fixation of the specific gravity of the urine occur.

Age and Cause of Death.

Such are the data on which separation into the two groups was made. A further analysis of the findings in these tables reveals, however, other striking differences, the most important of which, in our opinion, are the age of the patients and their mode of death. The average age on admission of the patients listed in Table I. was 33, in Table II. 49, a difference of 16 years. The mode of death was also strikingly different. All nine cases in the first group died within four months of admission to hospital. In one the mode of death is unknown; one died with cardiac failure and broncho-pneumonia. All the remaining seven died in uræmia. On the other hand, of the ten patients in the second group five are still alive at the time of writing, the longest time since admission being, however, only six months. Of the five who died the cause of death was cerebral hæmorrhage in three and in two cardiac failure, the longest interval between admission and death being seven months. In marked contrast to the other group, no death in uræmia has occurred. A further difference to which attention may be directed is the average systolic blood pressures. The average systolic blood pressure in Table I. is 220 mm. of mercury, in Table II. 245 mm.—that is, the patients showing the least disturbance of renal function have, on the average, the higher blood pressure. There are also minor differences to be noted in the frequency of small degrees of subcutaneous œdema and in the intensity of the albuminuria in the cases in Table I.

Significance of Grouping of Cases.

It would appear, then, that by our tests of renal function we have divided these cases of retinitis into two quite sharply defined groups.[1] The first of these consists of relatively young individuals with high blood pressure and gross loss of kidney function in whom death rapidly ensued usually in uræmia. The second consists of older individuals with still higher blood pressure, but less disturbed renal function, in whom life was relatively prolonged, and death, when it occurred, was from cerebral hæmorrhage or heart failure. What deductions can we draw from our analysis? What significance can we attach to this grouping?

There seem to be two possibilities: (1) that the two groups of patients represent different stages or different forms of the same pathological process; (2) that they result from different pathological conditions. It may be argued, for example, that the cases in Group 1 show merely the advanced stage of the condition seen in its earlier stage in Group 2. If this is the case, how does it come that the average age of the patients in Group 1 is 16 years younger than the average age of those in Group 2? It is admitted that the number of cases is small, but the difference would seem too great to be accidental. It may be suggested that the greater renal damage in the younger group of individuals has occurred because their younger vessels are less prone to the degenerations which follow prolonged high blood pressure, and their hearts less likely to fail, so that there is time for profound renal destruction to occur; whereas in older patients death results from cardiac failure or vascular degeneration leading to cerebral hæmorrhage before the process in the kidney has had time to achieve its final stages. If this were so, and the cases in Group 1 represented the end stage of a single process, we should expect that

TABLE I.—CHRONIC NEPHRITIS.

No.	Age.	Sex.	Date of admission.	Duration of visual symptoms.	Œdema.	Blood pressure.	Albumin.	Casts.	Blood urea g. per 100 c.cm.	P.S.P.* % in 2 hrs.	Urea con. test (15 g. urea by mouth).	Fixation of S.G.	Remarks.
											c.cm. %		
1	42	F.	3/9/22	9 mos.	S.	240/120	2/3	N.S.	0·436	0	18 = 0·84	—	Died, uræmia, 16/9/22.
2	25	F.	10/11/22	None.	S.	160/100	Cloud.	,,	0·400	0	= 0·9	—	,, ,, 7/12/22.
3	38	M.	8/8/22	2 mos.	N.	210/160	1/5	G. & H.	0·480	Trace.	124 = 1·14	Yes.	,, ,, 13/9/22.
4	46	M.	14/6/21	1 year.	M.	225/150	1/5	G.	0·141	Trace.	104 = 1·1	Yes.	Died, broncho-pneumonia and heart failure, 26/9/21.
5	29	M.	11/5/20	—	N.	200/140	2/5	G. & H.	0·107	Trace.	—	Yes.	Died, uræmia, 15/9/20.
6	30	M.	16/8/20	3 mos.	N.	230/135	2/5	—	0·141	Trace.	—	Yes.	,, ,, 7/9/20.
7	43	F.	28/12/21	2 mos.	S.	280/	1/6	G.	0·109	6	80 = 0·87	No.	,, ,, 21/1/22.
8	23	M.	28/10/22	1 week.	S.	240/170	2/3	G. & H.	0·171	7	62 = 0·96	Yes.	,, ,, 12/12/22.
9	25	F.	19/3/22	3 mos.	S.	210/160	1/5	,,	0·120	7	58 = 1·25	Yes.	,, ,, 17/5/22.

Average age, 33. Average systolic blood pressure, 220.
Œdema: S., slight; M., moderate; N., none. Casts: N.S., none seen; G., granular; H., hyaline.

TABLE II.—HYPERPIESIS.

1	54	F.	18/9/22	2 yrs.	SBL	290/170	1/3	G. & H.	0·080	15	93 = 1·86	No.	—
2	56	M.	17/11/19	3 mos.	N.	250/160	Cloud.	G. & H.	0·043	23	— —	No.	Died, hemiplegia, 15/6/20.
3	51	F.	15/5/22	6 mos.	N.	250/170	Trace.	N.S.	0·040	32	68 = 2·1	No.	Died, cardiac failure, 7/22.
4	54	M.	8/5/22	1 year.	M. (hf)	210/160	1/8	H.	0·035	30	75 = 2·2	No.	,, ,, 28/12/22.
5	52	M.	23/6/22	None.	N.	245/140	1/5	G.	0·060	12	= 2·0	No.	—
6	37	M.	19/10/21	3 mos.	N.	250/160	1/10	H.	0·030	30	95 = 2·3	No.	Died, cerebral hæmorrhage, 15/1/22.
7	43	F.	13/11/22	2 yrs.	N.	280/180	Cloud.	H.	0·020	48	6 = 2·28	No.	—
8	57	M.	1/12/21	2 mos.	N.	280/	Trace.	G. & H.	0·048	49	128 = 2·5	No.	Died, cerebral hæmorrhage, 12/11/22.
9	35	F.	15/9/22	None.	N.	225/160	None.	—	0·036	52	— —	No.	Transient hemiplegia.
10	49	M.	11/8/22	,,	N.	180/100	Trace.	H.	0·040	68	73 = 2·3	No.	—

Average age, 49. Average systolic blood pressure, 245.
Œdema: SBL, slight both legs; M. (hf), moderate (heart failure).

* NOTE.—The phenolsulphonephthalein (P.S.P.) employed in these tests gives a low figure for the normal; 40 to 70 per cent. instead of the 60 to 90 per cent. given by that supplied by Hynson, Westcott and Dunning, on which most figures for the normal are based.

[1] The authors wish to emphasise that they are not dealing in this paper with acute nephritis, subacute and recurrent nephritis, or chronic nephritis with gross œdema. No example of any of these conditions occurred in this series.

in them the blood pressure would be highest. But such is not the case, for the average systolic pressure in this group of patients, with most marked renal destruction, is actually 25 mm. less than in the patients in the other group.

This observation is in agreement with the experience of Prof. H. M. Turnbull, Director of the Pathological Institute of the Hospital, who informs us that at post-mortem examination of subjects showing evidence of renal destruction and high blood pressure these two findings are usually, in degree, in inverse proportion to one another. That is, that cases showing the most profound degrees of renal destruction show usually only moderate degrees of cardiovascular hypertrophy, while in cases in which the cardiovascular hypertrophy is extreme the amount of renal destruction is usually, relatively, slight or moderate. Considering still the first possibility, that of a single process, a third suggestion might, perhaps, be offered—namely, the patients in Group 1 may represent those in whom some previous illness, scarlet fever, or an earlier acute nephritis, has left the kidney more susceptible to unfavourable influences, for example, the prolonged high blood pressure. This argument is more difficult to meet, evidence to support or confute it is difficult to obtain, and we are not in a position to deny the possibility. Personally we feel that the unsatisfactory nature of any of the above explanations forces us to consider the second possibility, that the two groups of cases represent the result of different pathological processes.

This we believe to be the case. We consider that the evidence we bring forward strongly supports the view that the patients in Group 1 are cases of primary renal disease with secondary high blood pressure, and that those in Group 2 are cases of high blood pressure with secondary renal damage. Such a difference in ætiology explains satisfactorily the differences in age, in degree of high blood pressure and its accompanying cardiovascular hypertrophy, in amount of renal damage, and in the mode of death. That the patient with hyperpiesis eventually develops, owing to degenerative changes occurring in his hypertrophied renal vessels, degenerative changes in the kidneys is generally recognised. It is, perhaps, not so generally realised that retinitis is also a frequent result.

We believe, then, that it is possible to separate, in this series of patients with retinitis, two very distinct underlying conditions—chronic interstitial nephritis, and (enlarging the use of Clifford Allbutt's term) hyperpiesis. We believe, also, that a similar differentiation can be made in most cases of high blood pressure. In chronic interstitial nephritis a patient in previous good health is taken, rather suddenly, seriously ill and is found even at the time of first examination to have gross deficiency of renal function. Progress is steadily downward, and death frequently occurs within a few months, and usually in uræmia. In hyperpiesis a longer period of ill-health usually precedes admission to hospital, the patients are generally older, and, on investigation, show relatively little disturbance of renal function. Life is generally more prolonged, and death, when it occurs, is usually from heart failure or cerebral hæmorrhage.

In this series of 19 cases of retinitis, nine, we believe, were patients with chronic interstitial nephritis, and 10 were patients with hyperpiesis. The number of cases is too small to justify the drawing of conclusions, but they suggest that hyperpiesis is a more common cause of retinitis than chronic interstitial nephritis. We believe hyperpiesis to be a much more common disease. Whether the cause of retinitis is the same in both these conditions and what is its nature we are quite unable to say. The only common factor in the two conditions would appear to be the high blood pressure.

Morbid Anatomy of the Conditions.

It is obvious that the study of this series of cases is very deficient in one important particular—namely, morbid anatomy. Unfortunately post-mortem examinations were obtained in only three of the 14 fatal cases: two of chronic nephritis (Nos. 2 and 4, Table I.), and one of hyperpiesis (No. 6, Table II.). Prof. Turnbull kindly made a careful study of these three cases. He found in Cases 2 and 4 (chronic nephritis) "very great" destruction and fibrosis of the kidney, while in Case 6 (hyperpiesis) these changes were only "considerable." In Case 2 cardiovascular hypertrophy was "moderate" and intimal degeneration "slight"; in Cases 4 and 6 cardiovascular hypertrophy and intimal degeneration were "great." From the naked-eye examination at necropsy Prof. Turnbull considered the destruction of the kidneys in Case 6 to be ischæmic, in Cases 2 and 4 inflammatory; he failed, however, to find any special feature in the histology confirming this differentiation.

Shaw Dunn[1] has recently appealed for a clearer classification of the pathology of chronic nephritis, and has attempted in particular to separate the "primarily contracted kidney" of chronic nephritis from the "arterio-sclerotic" resulting from high blood pressure. This study is the beginning of an attempt to attain by clinical investigation the same desirable result.

In conclusion, we should like to express our gratitude to Prof. Turnbull and to those physicians of the London Hospital who permitted us to investigate their cases.

A NOTE ON THE GERMICIDAL QUALITIES OF SODIUM DI-IODOSALICYLATE (DIOSAL).

BY W. M. CROFTON, M.D. DUB.,

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THIS compound was made for me by my colleague, Dr. J. Algar, D.Sc., first assistant to the professor of chemistry, University College, Dublin, who was associated with me in a research into germicidal drugs for the treatment of tuberculosis under the auspices of the Medical Research Committee. Dr. Algar supplies me with the acid, which is then dissolved in distilled water, to which is added the equivalent amount of decanormal sodium hydroxide. The solution used is 1 per cent.; it was found to have a very powerful germicidal action on *Staphylococcus aureus*, no growth occurring after treatment of a suspension containing 1000 million per c.cm. for ten minutes. The technique was as follows:—To 5 c.cm. of a 2 per cent. solution of diosal in a centrifuge tube was added 5 c.cm. of a suspension of *Staphylococcus aureus* (2000 million per c.cm.). The tube was then centrifuged for ten minutes, the supernatant fluid pipetted off, and the action of the diosal stopped by the addition of sterile distilled water and centrifuged again. The deposit of microbes was then inoculated on agar slopes. The experiment has been repeated many times, and no staphylococcus has ever been found capable of surviving 1 per cent. solution for ten minutes. All the catarrh-producing microbes, such as *Micrococcus catarrhalis* and streptococci, were found to be killed just as rapidly. The effect on the tubercle bacillus was very different, exposure of a concentration of bovine bacilli of 1000 million to the cubic centimetre for even 24 hours had no germicidal effect whatever; in fact, the effect was an improvement of growth—a very unexpected result. It was found in rabbits that a 1 per cent. solution produced no sign of irritation of veins or intravascular clotting when given intravenously. A rabbit weighing 5 lb. could take 1·5 c.cm. daily without obvious effect; 2 c.cm., however, made the rabbit ill, the animal passing very little urine.

Use of Diosal in Human Beings.

The drug produced no sign of intravital germicidal action on rabbits infected with bovine tubercle

[1] J. S. Dunn: Brit. Med. Jour., 1922, ii., 1166.

bacilli either intravenously, subcutaneously, or by the inhalation of atomised droplets of water containing tubercle bacilli in suspension. Neither, however, did it appear to hasten their deaths, as might possibly have been expected by its increasing the growth of the bacillus in vitro. It has not been so far possible to reproduce the human pulmonary tuberculosis in rabbits—that is, a mixed infection with the tubercle bacillus and catarrh-producing microbes. It appeared to be legitimate, however, since the animal experiments were harmless, to try the product on human beings, especially on human beings so diseased that their lives were in imminent danger. On such a case diosal was first tried. A young man under treatment for tuberculosis of both lungs with specific antigens and intravenous injections of iodoform in ether developed a double pneumonia after a visit from a friend who had a severe cold. His temperature ran up to 105° F. Diosal was given daily intravenously in 3 c.cm. doses, and as his temperature came down, as it did rapidly by lysis, the doses were reduced to 2 c.cm. and then 1 c.cm. daily. His immunisation was then resumed with a fresh catarrh antigen containing the new microbes. He made a remarkable recovery and lived for six years afterwards, doing light duty, and finally dying suddenly of "secondary" hæmorrhage.

I have used diosal in many similar cases with very remarkable results, and also in rheumatic conditions, both acute and chronic. I find it often very rapidly removes pain, and so I frequently employ it for this purpose while the specific antigens are being prepared. One has to be careful not to use it until the microbes are isolated. I had occasion to take another specimen of urine from a rheumatic case owing to the antigens which were being prepared for him having been contaminated; I found the urine sterile and had to stop the diosal for three or four days before I could get the infecting microbes, *S. aureus* and streptococci, to grow again. I hope diosal will have extensive usefulness in rheumatic fever as an adjuvant to immunisation.

While serving with the R.A.M.C. in Malta during the war I tried the drug in 3 to 5 c.cm. doses, given intravenously, in some severe cases of infected wounds and septic gangrene due to frost-bite. The drug appeared to act in a remarkable fashion, the temperatures falling rapidly. In two cases in which the drug did not appear to have this effect I found paratyphoid B bacilli in the blood. Diosal does not appear, therefore, to kill these microbes intravitally.

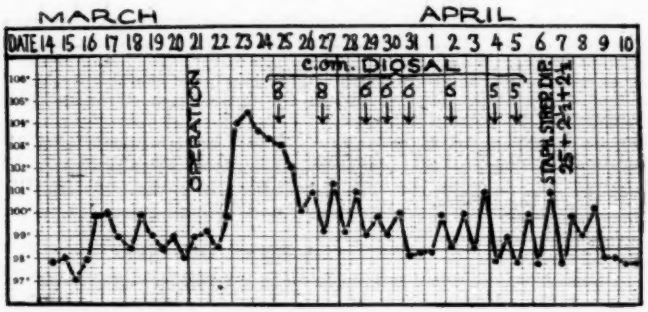
Illustrative Cases.

The power of diosal as an intravital germicide was finally demonstrated by a desperate case of wound septicæmia.

CASE 1.—A male, aged 20 years, was admitted to Dr. Steevens' Hospital under Mr. W. S. Haughton on March 14th, 1921, with his right leg shattered by a gunshot wound. When I saw him on Dec. 24th he was blanched, severely dyspnœic, temperature 103·6° F., pulse 144. His leg had been amputated, and as it had been thoroughly treated with antiseptics it was not feasible to take cultures from the stump. I made blood cultures and isolated streptococci in pure culture. I at once gave him 8 c.cm. of diosal pending the making of an antigen. He showed so much improvement I continued the diosal (see Chart 1) although the antigen was ready. About April 4th, 1922, the wound, which had so far had little discharge, began to produce pus and from this an autogenous antigen was made, with the result that his temperature became normal and remained so 48 hours after the first dose. The patient made an excellent recovery and has a perfectly sound stump.

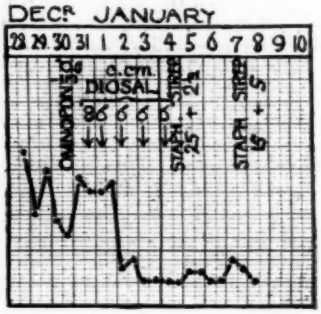
CASE 2.—This was a case of moderately severe erysipelas of the head and face. Chart 2 speaks for itself. The autogenous antigen was given to prevent relapse.

CHART 1.



Temperature in a case of wound infection.

CHART 2.



Temperature in a case of erysipelas of head and face.

Diosal given intravenously does not appear to have much effect on local suppuration as in wounds, but I have reason to think it may prove very useful as a local antiseptic, a germicide that will kill microbes but not tissue cells.

A SUGGESTED ÆTIOLOGY OF BAKERS' DERMATITIS.[1]

BY OSCAR DE JONG, M.B., CH.B. MANCH., D.P.H.,

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FROM time to time cases are seen of more or less severe dermatitis on the hands and forearms in men and women engaged in some particular industry. Prosser White in his excellent book [2] has classified these forms of dermatitis; I here propose to deal only with dermatitis in bakers. This condition is of considerable importance to the individual, because of the distress of symptoms and loss of work, and to the employer and insurance companies on account of the question of compensation and the loss of a skilled workman. I have known cases where the baker has continued to follow his employment of mixing bread, despite the fact that his hands and arms were weeping, rather than lose his work and run the risk of failing to obtain compensation. The Ministry of Health has recently been investigating the condition, but I believe their findings have not yet been published.

Symptoms.

The symptoms of the disease are those of an eczema or dermatitis. The patient for a variable length of time follows his employment of mixing the dough until one day he feels a burning sensation on the ulnar and flexor surfaces of the forearms and the backs of the hands, associated with some degree of pruritus. This is followed by a small papular eruption, which becomes vesicular and finally breaks down and weeps freely and is associated with very marked itching which becomes worse when the arms are heated. The areas,

[1] A paper read before Liverpool Medical Institution.

[2] R. Prosser White: Occupational Affections of the Skin. London: H. K. Lewis. 1915.

which vary considerably in size, become secondarily infected, usually by a form of staphylococcus, and scattered deep-seated pustules are then found. These symptoms continue as long as the patient remains at his work.

Bakers' Materials.

There have been various suggestions made as to the ætiology of the disease, one being the presence of a parasite in the flour, giving to the disease the name of "bakers' itch." Latterly it has been suggested that the patient is sensitised by the flour protein. Again, it has been thought that the presence of chemicals, calcium persulphate and nitrites, so-called "improvers," in the flour, have been responsible for the condition, or that the yeast or some other fungus sets up the dermatitis. Any one of the above might have been the important factor in producing the condition, and in this investigation I found it necessary to examine each of them.

Flour.—With regard to the flour, I visited two of the largest flour mills in the country. In each mill I found a male welfare supervisor, who assured me that cases of skin trouble on the hands and arms of workers were unknown. I also spoke with the workmen, and obtained the same reply. The men were covered from head to foot with flour dust day after day, so I felt justified in concluding that the flour itself was not the direct cause, and that there was no question of direct sensitisation by the flour protein. I obtained samples of the flour from the bakehouses in which the patients were working; and these I submitted to Prof. W. H. Roberts, of Liverpool, who very kindly investigated them for me, reporting that he found no chemicals, acari, or fungi present.

Yeast.—With regard to the yeast, inquiries made at the distillery revealed no instances of dermatitis or eczema in the men engaged in manufacturing or packing the yeast. Incidentally, I may mention that a manager of a distillery had heard that yeast was good for boils and also acted as a preventive; he was not suffering from furunculosis at the time, but he thought that having the yeast he might as well take some. After taking it for some weeks he commenced with a carbuncle which took three months to heal, so he informed me.

Bakers' Methods.

I next directed my attention to the conditions and methods under which the bread was made. It will be found on inquiry from a patient that he is employed in a bakehouse where the dough is mixed by hand. I have not found bakers' dermatitis in men employed in bakehouses where the bread is mixed by machinery. The method of mixing is as follows: Two sacks of flour, weighing about 280 lb., are placed in a trough; into another trough are placed 9 lb. of salt and 24 gallons of water; 4½ lb. of yeast are mixed with a gallon of water in a bucket and added to the trough containing the salt and water. The mixture of salt, yeast, and water is then mixed by use of the hands and arms and aerated by raising the mixture with a can and allowing it to fall from a height into the trough. A quantity of the salt-yeast mixture is added from time to time to the flour in the other trough and this is kneaded with the hands and forearms. This process is continued until the salt-yeast mixture is used up, and the dough mixed and ready for weighing and baking.

This routine is followed by the baker day after day and week after week. He is using a solution of 9 lb. salt to 25 gallons of water—that is, approximately a 3·6 per cent. solution, or about 17 gr. to the ounce. The temperature of the water used is between 70° and 80° F., and the temperature of the bakehouse is about 110° to 120° F. From time to time the baker has to leave his mixing of the salt and yeast mixture to attend to his oven, and my patients tell me that the salt crystallises on their hands and arms in the interval. These crystals are worked into the skin in the process of kneading.

An "Idiosyncrasy" for Salt.

It seems to me, therefore, that the salt may justifiably be regarded as the direct cause of the condition, but the patient must display an idiosyncrasy, if I may be pardoned for using the word, for the salt, as the condition is not found in all bakers.

It is interesting to note that dermatitis occurs in people other than bakers who are habitually engaged in the handling of salt—for example, herring salters and packers, and rock-salt workers. The important fact remains that a man suffering can be cured under simple treatment on being removed from his work if there are no secondary symptoms, but that on his return to work he will relapse. I think that he is entitled to compensation, as the Act states that any powder or liquid used in the process of his work entitles a man to compensation if the powder or liquid can be shown responsible for the condition. This is an important point for the insurance companies because it means that any insured baker suffering from dermatitis will, as long as he continues to work, be off for long periods and draw compensation, whereas in some other employment he would be able to work without this disadvantage.

I do not in this short note propose to discuss treatment, but I think that a measure of prophylaxis would be found in the provision of a rose spray of running fresh water under which the man might rinse his arms from time to time, especially before going near the oven, and at intervals during the kneading.

THE

EFFECT OF DETOXICATED VACCINES ON THE PERSISTENCE OF THE DIPHTHERIA BACILLUS.

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AT various times many remedies have been put forward to effect the cure of the diphtheria carrier. The result up to the present has not been satisfactory, although there appears to be a distinct hope of success in surgical methods of treatment, particularly in the case of faucial carriers. The administration of vaccines has met with varying results in the hands of different investigators. The vaccine used has been in some cases an autogenous, in others a stock, and more recently a detoxicated Klebs-Löffler preparation. The dosage administered has varied from 10 millions or less up to, in the case of the detoxicated vaccine, the single huge dose of 350,000 million organisms. The method of administration and the intervals between doses differ also. We have a choice of subcutaneous, intramuscular, or intravenous routes, and any interval of time between doses that we please, though injections repeated at weekly or three-day intervals seem to be most favoured.

In the administration of any vaccine the dosage is most important. It should always aim at being the largest possible, consistent with the absence of any marked general reaction. In the use of ordinary specific vaccines the dosage is very definitely limited, owing to the production of unpleasant constitutional symptoms. This is presumably due to their high toxin content. With these toxic vaccines the largest possible dose is usually small and inadequate, and the amount of antibody formation is correspondingly minute. In the case of detoxicated vaccines it has been asserted that we have a product from which the toxic factor has been removed, and yet the immunising property retained.

Fraser and Duncan,[1] using detoxicated Klebs-Löffler vaccine, met with some considerable measure of success in the treatment of chronic diphtheria carriers. F. M. Wood[2] claims that by employing his vaccine antitoxin treatment of diphtheria the

[1] Fraser, A. R., and Duncan, A. G. B.: THE LANCET, 1920, ii., 994.
[2] Wood, F. M.: New York Med. Jour., Jan. 10th, 1920.

production of toxin is stopped from the time that the vaccine is administered; the antitoxin neutralises the toxin already formed; in carriers the bacilli are destroyed. He states that in cases of diphtheria the Klebs-Löffler bacillus disappears from the throat within ten days, thus shortening the quarantine period.

If such results were attainable by using moderate doses of an ordinary diphtheria vaccine it appeared to me that a detoxicated preparation used on the same principle would perhaps be even more effective. This I proceeded to test.

Dosage.—Reactions.

The question of dosage had now to be decided. J. L. Brownlie,[1] using an ordinary diphtheria vaccine, successfully cleared up some 50 convalescent cases, his dosage varying from a total of 10 to 200 million bacilli. Wood administered three doses of 300 to 500 million bacilli at three-day intervals. Fraser and Duncan, using detoxicated Klebs-Löffler vaccine, obtained negative cultures in two chronic carriers after a total dosage of 8900 million and 20,700 million bacilli respectively.

The routine dosage of detoxicated Klebs-Löffler vaccine I adopted was an initial dose of 2000 million bacilli, followed at three-day intervals by two more doses of 4000 and 8000 million bacilli respectively, making in all a total of 14,000 million organisms. This dosage was adhered to irrespective of age or severity of disease. The initial dose was given on the day of admission in addition to the usual treatment by antitoxin. All the injections were given subcutaneously. Vaccine-treated cases were alternated with control cases, which did not receive vaccine, until some 60 of the latter had been obtained, after which every case was treated with vaccine. No selection was exercised as to which case was to receive vaccine and which was not. They were strictly alternated. A certain percentage of cases sent in to the hospital notified as diphtheria were found to be follicular tonsillitis, Vincent's angina, &c., and these had to be excluded from the series.

The local reaction was very slight, and caused no discomfort beyond some slight tenderness to touch. In all, some 500 doses of vaccine were injected subcutaneously, ranging from 2000 million to 20,000 million organisms, and in no case did constitutional symptoms arise.

Method of Estimating Total Persistence of Bacilli in Convalescents.

Cultures from fauces and nose were taken at weekly intervals in both series of cases until a negative culture was obtained. Cultures were then taken on alternate days until three consecutive negatives were obtained. If a positive culture followed a negative result, as often happened, the culture-time reverted back to weekly intervals until another negative was obtained, when cultures at two-day intervals were again started. If three consecutive negative cultures were obtained early in convalescence, some considerable time before the patient was fit to be discharged, then cultures were again examined in the week previous to discharge. Many cases thus had five, and some even seven, consecutive negative cultures as evidence of their freedom from diphtheria bacilli. The day half-way between the date of the last positive culture and the first of three or more consecutive negative examinations was taken as the day on which the patient last harboured the diphtheria bacillus. The results thus obtained gave the number of days the diphtheria bacillus persisted in the throat or nose of the patient after admission to hospital. In working out the total length of persistence of bacilli, I have calculated the number of days from the date of the first symptom to the final disappearance of bacilli, as judged by at least three consecutive negative cultures examined on alternate days.

[1] Brownlie, J. L.: THE LANCET, 1920, i., 706.

1. *Effect of Vaccine on Time of Disappearance of Bacilli.*

Does the diphtheria bacillus disappear at an earlier date from the throat and nose of the vaccine treated case than from that of the non-vaccine treated case? In a series of 207 clinical and bacteriological cases of diphtheria, 146 were treated with detoxicated Klebs-Löffler vaccine as described above, whilst 61 were control cases. Both series of cases were adequately dosed with antitoxin, according to the severity of the disease. (Table I.)

TABLE I.

A = Non-vaccine cases. B = Vaccine cases.

—	Day of disease on admission to hospital.												
	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th
A ..	3	10	16	16	7	3	1	3	0	1	0	0	1
B ..	3	32	34	40	18	7	4	4	1	1	0	1	0

The mean number of days of illness previous to admission to hospital in 61 non-vaccine cases was 3·96 days, and in 145 vaccine cases 3·77 days.

Dividing the cases up into those admitted up to, and on the fourth day of illness, and secondly, those admitted later, we find the result given in Table II.

TABLE II.

Cases admitted—	Non-vaccine cases.	Vaccine cases.
	Per cent.	Per cent.
First to fourth day of illness inclusive	73·77	75·35
Fifth day of illness and later	26·23	24·65

The figures in Table II. show that treatment was started on approximately the same day of illness in both series of cases.

With regard to the severity of the cases in the two groups as judged from the amount of antitoxin administered, we find the result given in Table III.

TABLE III.

Cases receiving—	Non-vaccine cases.	Vaccine cases.
	Per cent.	Per cent.
6000 units of antitoxin or less	70·00	76·72
More than 6000 units of antitoxin ..	30·00	23·28

The figures in Table III. show a slightly higher proportion of severe cases in the non-vaccine group than in the vaccine group.

The rate of disappearance of diphtheria bacilli is shown in Table IV.

TABLE IV.

Mean persistence of diphtheria bacilli in throat or nose *after disappearance of membrane.*

In 55 non-vaccine cases	16·51 days.
In 144 vaccine cases	14·08 ,,

Mean *persistence of membrane.*

In 55 non-vaccine cases	6·47 days.
In 144 vaccine cases	6·53 ,,

The duration of membrane is calculated from the day of the first symptom to its final disappearance.

Mean persistence of diphtheria bacilli in throat or nose *from first symptom to final disappearance.*

In 55 non-vaccine cases	22·98 days.
In 144 vaccine cases	20·61 ,,

Mean persistence of diphtheria bacilli in cases of *nasal diphtheria.*

In 4 non-vaccine cases	36 days.
In 13 vaccine cases	39 ,, *

* One case still harboured diphtheria bacilli 120 days after admission to hospital.

Table V. shows percentage rate of disappearance in successive seven-day periods.

TABLE V.

Days from onset of disease.	Non-vaccine cases.		Vaccine cases.	
	Number of cases which became negative in each week.	Cumulative percentage.	Number of cases which became negative in each week.	Cumulative percentage.
0– 7	6	11	10	7
8–14	14	37	51	43
15–21	7	50	23	60
22–28	13	74	25	77
29–35	4	81	16	89
36–42	6	93	6	93
43–49	1	94	6	97
50–56	3	100	0	97
57–63	—	—	3*	99

* One case with diphtheria bacilli still in nose 120 days after first symptom.

2. *Effect of Vaccine on Persistence of Bacilli in the Convalescent.*

Does the administration of vaccine prevent the prolonged persistence of diphtheria bacilli in the throat and nose of the convalescent case? From Table V. we see that three cases harboured bacilli up to the eighth week. Of these, two were faucial carriers and one nasal. One case treated with three doses of vaccine, a faucial and nasal diphtheria on admission, still harboured virulent diphtheria organisms in the nose 120 days after admission to hospital.

Conclusions.

The administration of detoxicated Klebs-Löffler vaccine in the particular manner and dosage I adopted (*a*) has no appreciable effect in hastening the disappearance of the diphtheria bacillus from the throat or nose of the diphtheria convalescent, and (*b*) does not prevent those cases of prolonged persistence to which, after an arbitrary period of three months, we apply the term "chronic carrier."

I might mention that, so far as could be observed, and taking into account the small number of cases dealt with, the administration of vaccine appeared to have no influence on the clinical course of the case.

It is with pleasure I express my thanks to Dr. C. B. Ker, medical superintendent, City Hospital, Edinburgh, for the facilities he placed at my disposal, and his unfailing interest; also to Messrs. Genatosan, Ltd., who very kindly kept me supplied with detoxicated Klebs-Löffler vaccine.

Medical Societies.

OPHTHALMOLOGICAL SOCIETY: ANNUAL CONGRESS.

THE Annual Congress of the Ophthalmological Society of the United Kingdom was held on April 26th, 27th, and 28th at the House of the Royal Society of Medicine and (for the clinical meeting) at the London Hospital. The chair was occupied by the President for the year, Dr. A. MAITLAND RAMSAY (Glasgow).

Opening Address.

The PRESIDENT delivered his inaugural address, choosing as his subject the debt which general medicine owes to ophthalmology. He said it was easier for most men to trust in authority than to exercise independent judgment, but the trend of modern progress was to appeal less and less to authority. Specialism was the natural sequel of increase in knowledge, and it should be symbolic of the highest form of efficiency. The tissues of the eye were so delicate, its structure so complicated, its diseases so numerous and so frequently followed by disastrous results that it was no matter for wonderment that oculists had existed from time immemorial, though in quite early days their claim to practise the specialty were very poor, as they had not acquired the general principles of medicine and surgery. The specialist in medicine must combine the diagnostic skill of the physician with the dexterity of the surgeon, and add that special knowledge which gave him power to reach further. It should be the aim of every specialist, by reading and frequent visits to a general hospital, to keep in touch with medicine, at least along its most important lines of advance. But there should be no hurry, as that might lead to specialisation too early, to the cultivation of one department to the exclusion of others. The study of ophthalmology, he contended, constituted the best discipline in exact observation in the whole medical curriculum; it was, indeed, an education in itself, for absolute precision was of the first importance. It was a great aid, too, to a methodical investigation of diseases of the nervous system. Such a purely ocular condition as optic atrophy, ocular palsy, or loss of the pupillary light reflex might lead to the diagnosis of tabes dorsalis. One patient he saw had been blind from optic atrophy 20 years before the onset of the more widespread manifestations of disease of the spinal cord. Likewise the study of the eyes might give decisive evidence of disease of brain or kidneys. Homonymous hemianopsia might be the only proof remaining of a past cerebral hæmorrhage, and its recognition where paresis had been slight and transient would prevent the physician falling into error, either in regard to diagnosis or prognosis. On account of the transparency of its structures, the eye had always been the hunting-ground of the pathologist; pathological changes usually hidden from view could be seen and watched in the eye from day to day.

For some years he had been working with Sir James Mackenzie, to whose teaching he owed a great deal of inspiration. He had been struck by the similarity of action of ciliary muscle and cardiac muscle. In both, the limits of muscular capacity must be respected and the amount of work to be done should be adjusted accordingly. Of all the unstriped muscles in the body, it was only the ciliary muscle and the cardiac muscle which could be forced by the will to continue working long after Nature had called for rest; the former of these was active all through the waking hours, and the latter was incessant. The reserve power of both became less as age advanced. Loss of power in the eye could be measured and glasses prescribed accordingly; but in the case of the heart which was using up its reserve, all that could be done was to limit its work in accordance with its capacity. The power of accommodation could be regarded as a fair index to the general health. In emmetropes who were robust, the need for spectacles could be delayed beyond the usual age, just as the heart of some elderly people permitted them to play strenuous games; but in them the rapid onset of presbyopia was always a sign of failing health, and that the person was not likely to live much longer. Adults often complained of their eyes after influenza, and children often suffered from their eyes for the first time after measles or scarlet fever; in fact, sight was quickly affected in all disorders of the body. Inability to use the eyes for close work on account of excessive pain, with hyperalgesia of the skin of the scalp, were symptoms in every way comparable with those present in angina pectoris. The acute symptoms might not be manifest until some hours after the causal effort.

In conclusion, he said the gain to scientific medicine would indeed be great when the ophthalmologist coöperated closely with the family doctor and kept himself informed of the subsequent medical history of patients who had consulted him on account of failing sight, and when, on the other hand, the general practitioner brought his medical knowledge, experience, and common sense to bear on all the ophthalmological problems with which he might be confronted in his work.

Mr. E. TREACHER COLLINS read a paper on

The Ætiology of Angeoid Streaks in the Fundus Oculi.

He said a comparison of the arrangement of these streaks in the different recorded cases showed that they presented certain common characteristics, which could only be accounted for by there being some anatomical factor upon which their distribution depended. Their arrangement, he showed, corresponded closely to that of the circle of Zinn of the short posterior ciliary arteries around the optic disc, and of the main branches proceeding from it. Ophthalmoscopic observations by several different writers showed the undoubted hæmorrhagic origin of these streaks. The hæmorrhages from which they had been seen to arise were never situated in front of the retinal vessels, nor were they flame-shaped like retinal hæmorrhages, but presented the characteristics of subchoroidal or interchoroidal hæmorrhages. Blood effused between the choroid and sclerotic, due to its slow absorption, would, like blood stagnant in other parts of the body, tend to give rise to insoluble crystals of hæmatoidin and hæmosiderin. These, if deposited in the perivascular spaces around the branches of the short ciliary arteries, would account for their pigmented appearance when viewed ophthalmoscopically.

The other fundus changes commonly met with in association with angeoid streaks, such as haze or pigmentation of the retina, various degrees of atrophy of the choroid, &c., were also, he said, adequately explained as the outcome of subchoroidal hæmorrhage. There was not yet sufficient evidence as to why patients suffering from this affection should have choroidal hæmorrhages.

Consecutive Cases of Cataract Extraction by Barraquer's Method.

Mr. R. AFFLECK GREEVES and Mr. R. FOSTER MOORE read independent papers on this subject.

Mr. Greeves's contribution was based on 49 patients from whom he removed, or attempted to remove, the lenses by Barraquer's method. In two cases he removed the lens from each eye, making the total number of lenses 51. The cases he divided into three groups. In Group 1 (31 cases) the lens was successfully extracted in its capsule. In Group 2 (7 cases) the capsule broke during the operation, but he was able to extract the greater part of the lens substance with the suction instrument, the capsule left behind being subsequently needled in the usual way. In the third group (13 cases) the lens could not be delivered by the suction instrument, and the use of the scoop was necessary. The cases in the second group mostly ran the same course as those after extraction by the old method, and in each case the secondary cataract was needled. In one, needling was a failure, and he proposed to perform iridotomy. In all the 13 cases a scoop was used. In the majority very little vitreous was lost, and on the whole he did not regard the visual results as unsatisfactory. The smallness of the vitreous loss was probably due to the lens being already dislocated forwards. In one case the cataract was hyper-mature and the zonule weak. If a complete iridectomy had been done, the corner of the coloboma might become caught in the edge of the cup and prevent extraction. Another possible reason was the giving way of the lens capsule after the lens was dislocated. A further cause for failure was an unknown variability in the negative pressure obtainable due to the changes in strength of the electrical current which actuated the motor. He entered into the technique of the operation, and gave particulars of each of the 51 lenses treated. In conclusion he said his view was that the result of a successful intracapsular extraction by this method left nothing to be desired. The pupil was black and free of membrane, the media were clear, the visual acuity was excellent, and there was no undue amount of astigmatism. On the other hand, however, the method had shown itself to be less certain in its results than extraction without the capsule.

Mr. Foster Moore's paper was based on 38 cases; he had excluded 6 in which he operated with an improvised method of producing the vacuum before the Barraquer apparatus was available. Concurrently with doing this operation at Moorfields, he had been, at St. Bartholomew's Hospital and in private, carrying out the extra-capsular method, and this enabled him to judge the better of the respective merits of the procedures. He described a modification of Barraquer's instrument which he had been using; this enabled more delicate manipulation to be carried out, and had no valve which could get out of order. His chief difficulty had arisen from the separation of the cup from the lens when traction had been applied, so that in some cases the instrument had to be re-applied a number of times. Sometimes rupture of the capsule had ensued, sometimes recourse had to be had to the cystotome or scoop. He was sure some of the difficulties had been due to defective suction; in the earlier cases it was not appreciated how poor the suction was. In the latest Barraquer instrument a manometer was incorporated—a great gain. Of the 38 cases, 22 could be said to have had a quite successful result, the lens being removed entire in its capsule, and there were no difficulties or complications at the time. In 5 others the lens was removed in its capsule, but there was some loss of vitreous. Thus there were 11 cases in which he failed to remove the lens with the instrument, and other means of doing so had to be resorted to. In 7 cases the lens was expressed after either rupture of the capsule by the instrument, or after cystotomy; and in 4 cases the scoop had to be resorted to. In 9 cases in the series there was loss of vitreous. In one, suppuration occurred and evisceration was performed. In every other case some useful vision at least resulted.

He proceeded to discuss the advantages and disadvantages of the method. Among the advantages were that the whole capsule was removed with the lens, tags of it could not become incarcerated in the incision, and, further, no secondary needling operation was necessary. An important advantage, also, was absence of post-operative iritis. And it was gratifying to see a uniform black pupil after the operation. The outstanding disadvantage of the method was the frequency of vitreous loss and its consequences. When such loss occurred he did not doubt that the prognosis, both immediate and remote, was worse than when there was no such loss. In 23·7 per cent. of his cases there was loss of vitreous. And a very important result was that the welling of the vitreous into the wound carried the pillars of the iris into the incision, and a deliberate attempt to replace them resulted in further loss. And should any secondary operation be needed in the first day or two, the risk of vitreous loss again became important. The danger, however, was much minimised by paralysing the orbicularis with novocaine. In Barraquer's method the lens was drawn out of the eye, not expressed from it; therefore a slight negative pressure was developed within the globe, so that the vitreous tended to suck back rather than to follow the lens, and this might render loss of vitreous more frequent than would otherwise be the case. And in many cases there was need for a complete iridectomy. Altogether, he considered that the operation had in it a considerable element of danger, especially in the matter of vitreous loss, so that for general use it was inferior to the older method. But for immature cataracts and sclerosed lenses the Barraquer method had distinct advantages of its own.

Mr. MALCOLM HEPBURN commended the courage and enterprise of the readers of these two papers, but remarked that the success of this operation depended largely on a machine rather than upon the surgeon's personal skill. Therefore it was not surprising that some of the unsatisfactory results were ascribed to deficiency in the electric current. A further objection was that the instrument had to be held so tightly that it interfered with delicate movements. He did not think the Barraquer method was likely to replace the older operation.

Mr. HARRISON BUTLER emphasised the value of paralysis of the orbicularis muscle by novocaine. Since he saw Mr. Foster Moore do this, he had himself carried it out in every case, as a routine. It gave the surgeon a sense of security and was a comfort to the patient.

Mr. J. H. FISHER discussed the mode of action of the original Barraquer instrument and of the recent modifications.

Mr. LESLIE PATON asked to what extent the operators by this method depended upon the rocking movement of the lens so as to secure the abolition of the vacuum between the back of the lens and the hyaloid cup, so as to diminish the risk of vitreous prolapse.

Colonel H. SMITH, I.M.S., said he thought secondary operations for cataract should be deferred for ten days. With regard to the capsule holding back the vitreous, the hyaloid was not completely independent of the capsule of the lens, as Prof. Anderson Stewart showed in 1894. The iris tended to be pushed more forward in intracapsular extraction than after the ordinary operation; and in the former, too, there was greater liability to prolapse of iris. If all else was as it should be, loss of vitreous, even to the extent of one-third, did not militate against the eye lasting as well as an ordinary eye. He was inclined to think that in these cases vitreous was renewed, but he could not be sure on the point. A drawn-up pupil was a too frequent sequel of these operations. He also emphasised the need of thorough control of the orbicularis during the operation. For this he preferred the ordinary squint hook to the injection of novocaine. Any procedure or instrument which was inelastic was liable to fail. He congratulated Mr. Neame and Mr. Foster Moore on their adventure into this field.

Lieut.-Colonel H. KIRKPATRICK, I.M.S., spoke of the efficacy of Colonel Smith's control of the orbicularis in doing the operation for cataract. He considered that loss of vitreous must be looked upon as a disaster in the operation, and anything which diminished the loss of vitreous must be regarded as an advantage.

Mr. GREEVES and Mr. FOSTER MOORE replied.

(To be concluded.)

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

A MEETING of this Society was held at 1, Upper Montague-street, London, W.C., on April 20th, Dr. T. EUSTACE HILL, the President, being in the chair. On behalf of the Metropolitan branch Sir WILLIAM HAMER presented to the Society a portrait of Dr. W. J. Howarth, who being a member of that branch was president of the Society last session. Dr. EUSTACE HILL, in accepting the gift for the Society, eulogised the great services which Dr. Howarth had rendered during his year of office.

Dr. A. H. BYGOTT (county M.O., West Suffolk) then read a paper entitled

Death Certification, More Especially as it Affects the Office of Coroner.

He proposed that the work done by the coroner should be divided, the medical part being done through medical officers of health and the legal part by the legal department of counties and county boroughs working with the police. A medical study of each individual death was likely to suggest preventive measures, and public health authorities could no longer afford to acquiesce in the coroner's office being ad hoc. That office dated from the time of the Saxon kings, and much of the law dealing with it belonged to the thirteenth century and was not well suited to the conditions of modern life. In England and Wales there were about 330 coroners with salaries varying from under £20 per annum to over £1000 and amounting to £77,477 in all, not including certain other expenses. In 1920 53,714 deaths (11·5 per cent.) were referred to coroners, in respect of which 31,486 inquests were held (the others being investigated without inquests) and 12,310 post-mortem examinations were made. There were 192 verdicts of murder, 89 of manslaughter, 6 of justifiable homicide, 137 of felo-de-se, 3236 of suicide, 23 of deaths from neglect of others, 88 from want and exposure, 13,744 from misadventure, and 11,748 from natural causes. There were also 1733 open verdicts. The speaker further pointed out that the proportion of reported cases dealt with without inquest and also the proportion in which post-mortem examinations were made varied very greatly with different coroners. In country districts the numbers of post-mortems were usually low. Under the present system the number of open verdicts was high. The number of murder cases from poisoning was small, and judging from some recent cases Dr. Bygott suggested that a better system of inquiry would reveal more of these. Deaths from accidents were high and many were preventable, which he claimed was an unanswerable argument for improving the system and associating it with other health activities.

The Medical Officer of Health as Coroner.

The Select Committee on Registration and Certification (1893) recommended that all medical death certificates, for which a fee of 2*s.* 6*d.* should be paid, should be sent to the Registrar by post as confidential documents, that all uncertified deaths should be reported to the coroner, and that in every sanitary area the M.O.H. should be appointed as public certifier to investigate deaths and report to the coroner if the circumstances were not satisfactory. The Departmental Committee on Coroners' Law (1909) reported that "the present law of death certification offers every opportunity for premature burial and every facility for the concealment of crime." In 1913 Dr. W. A. Brend read a paper to the Medico-Legal Society in which he suggested that a private inquiry by a medical coroner should replace the present system and that the office should be definitely a medical one instead of legal. He did not, however, deal with the interest which public health authorities had in the question. Dr. Bygott claimed that experience of the past eight years showed that inquests without juries were quite practicable in this country. The value of the jury had disappeared since medical evidence had taken the place of inspection of wounds and the like by members of the public. The compass which guided the M.O.H. was his vital statistics, especially death returns. He was a man of standing in his profession not engaged in private practice either as a doctor or solicitor, and was capable of organising the work of ascertaining the cause of death. Dr. Bygott therefore suggested that the office of coroner as it exists should be abolished and that inquiries into the cause of death should be dealt with by the M.O.H. of counties and county boroughs, any legal action required being undertaken through the clerk of the council assisted by the police.

Anomalies of the Present System.

The present system was both costly and inefficient. The procedure of inquests was mediæval, and caused waste of time and undue publicity to the affairs of a family in great distress. There was no official regulation of procedure, the laws of evidence were disregarded, and the investigation could only deal with a body, which might be in a different district from that in which the crime (if any) was committed. If the body was not found, no inquest could be held. The existence of franchise coroners was an anomaly, their salaries and expenses being paid by county councils, while they were nominated by private individuals or corporations. While most coroners were either solicitors or medical practitioners some were neither, and there was no statutory qualification except the holding of lands in fee. Except in a limited number of cases there was no statutory duty to report to the coroner, though registrars were instructed to do so whenever they were aware of a death not accompanied by a medical certificate. The coroner's officer on whose

report the coroner acted was not always a member of the police force and was sometimes a very unsuitable person. The coroner had no power to order and pay for a post-mortem examination unless an inquest were held, though this would often make the inquest unnecessary. He had no medical department at his disposal in cases involving highly complicated scientific investigation, though the Home Office might give help in certain cases. A doctor could not obtain scientific help in cases in which he suspected poisoning, and if his fears were groundless a public inquiry might place him in a very unenviable position. The present rule of viewing the body was objectionable. It was of no assistance, and it often necessitated the inquest being opened before the scientific inquiries were complete. Many of the post-mortem examinations ordered by coroners were carried out in very unsuitable premises, by inexperienced men working without proper facilities, and the mortuary attendants were often of an undesirable character. Much better work might be done with proper organisation, capable of rendering important service to legal and curative medicine. This should be one of the first cares of the Ministry of Health. Moreover, friends object to post-mortems and they had a right to expect them to be done under decent conditions. Another anomaly referred to was the fact that in cases involving criminal proceedings the case was tried by both the coroner's and the magistrate's court before committal to the assizes, and that the decisions of the two courts sometimes differed.

Dr. Bygott criticised the Bill now before the House of Commons, entitled "Coroners' Law and Death Certification Amendment." He suggested that the expense of the proposed reforms was greater than the improvements would justify, and that the proposals were inferior to those which he was submitting. Some of them he suggested were objectionable, and there were many existing anomalies with which the Bill failed to deal.

Discussion.

The PRESIDENT remarked that it was now 30 years since the Select Committee had reported on many of the very points which Dr. Bygott had raised. With regard to the proposal that the M.O.H. should be required to inquire into deaths, this could only be done by the appointment of suitable persons on his staff. His time was too fully occupied for him to do the work personally. He spoke of unqualified medical practice, which Dr. Bygott had said would be discouraged if full medical inquiries were made into every death, and remarked that in one district in Durham County over 20 per cent. of deaths were uncertified because of the prevalence of such practice. Some years ago, on instruction from the Local Government Board, the coroner held inquiries into every uncertified death, and this had a very good effect in restricting unqualified practice. The instruction was afterwards withdrawn. That criminal negligence and crime often went undetected was clear from the cases in which the Public Prosecutor obtained convictions when these circumstances were not revealed as the result of the coroner's inquest.

Dr. F. E. FREMANTLE, M.P., observed that Dr. Bygott's proposals raised questions of privilege and office which would necessarily cause strenuous opposition, and that the attitude of the legal profession, extremely powerful as it was, might be hostile. If the matter could be ventilated and threshed out in the Medico-Legal Society this might induce the lawyers to look upon it more favourably. It fell within the province of the Home Secretary and his legal advisers. In regard to the proposals in connexion with the M.O.H., Dr. Fremantle submitted that it would only be possible for him to deal with the matter administratively. The present Bill was not regarded as a solution of the problem, but it broke the ground and prepared the way for further action in the future. Much work on the subject would be required and it would be necessary to show that the present system actually caused harm and loss to the State. That the office of coroner was anomalous was not important; the important question was that of efficiency. In considering reforms on the medical side the importance of the legal side must not be lost sight of.

Dr. C. PORTER (M.O.H., St. Marylebone) felt that as compared with Dr. Bygott's proposals there was much more chance for the other reform that had been a good deal canvassed—viz., that the M.O.H. should be appointed as registrar of deaths instead of a layman. Such a reform as this might make the further proposals in regard to the office of coroner more practicable later. He did not think that the proposal to divide the work of the coroner between two different officials, medical and legal, would meet with much favour. The removal of established officers was always a difficult task.

Reply.

Dr. BYGOTT said that he had in mind in his proposals that the M.O.H. would not carry out the details of the office personally, but through his staff. He had purposely refrained from discussing the question of the M.O.H. acting as registrar, as not being germane to his subject. It would be much easier to make this change as to registration in the towns than in many rural areas.

LIVERPOOL MEDICAL INSTITUTION.

A MEETING was held on April 12th, Prof. J. HILL ABRAM, the President, being in the chair.

Exhibition of Cases and Specimens.

Dr. J. R. LOGAN read a note on Unusual Mineral Deposit in Soft Tissues of the Hands, and showed X ray photographs. The patient was a female, aged 60, suffering from a mild degree of Raynaud's disease. The hands and feet were always cold, the former often of dusky blue colour; dilated veins were visible on face, ears, and tongue. The mineral deposit was not found in the toes. There were many nodules on the sides and palmar surfaces of fingers and thumbs, in the subcutaneous tissue, not specially near the joints. Analysis showed that there was no trace of uric acid, and that the substance giving the dense shadows was phosphate and carbonate of lime.

Mr. ARTHUR EVANS read a note on a case of Fracture-dislocation of the Fourth Cervical Vertebra. The patient, having fallen from a motor-lorry, was admitted into the Southport Infirmary under the care of Dr. Reinhardt Anderson. The injury was followed by a definite paresis of both upper and lower limbs with sensory phenomena indicating a lesion of the fifth cervical segment of the cord. There was definite tenderness over the region of the fourth cervical spine. A radiograph showed a well-marked fracture-dislocation forward of the fourth cervical vertebra upon the fifth below. Expectant treatment was carried out, but the patient's condition became stationary in a short period of time. Laminectomy therefore was performed six weeks from the date of the accident, the spines and laminæ of the third, fourth, and fifth cervical vertebra being removed. The cord, at the level of the dislocation, was found to be grooved and indented in its entire circumference by the laminæ of the fractured vertebra behind and in front by the "angulation" produced by the body of the vertebra below the dislocation. The patient made a steady and rapid recovery. Twelve months from the date of his injury he was able to resume his ordinary employment as a mechanic in a well-known motor factory, an occupation requiring not only considerable muscular strength, but unusual deftness of hands and arms.

Prof. R. J. M. BUCHANAN introduced a discussion on

Non-obstructive Jaundice.

He considered that distinction should be made between jaundice without gross obstructive lesion

and jaundice from other causes. He held that the condition was always in the last event due to obstruction to the biliary secretion, even in cases where the cause was an inflammatory condition on the liver. Prof. Buchanan reviewed the differential diagnosis and the value of the Cammidge reaction and of the chemical test introduced by Van den Bergh. He discussed the difficulty that arises in the diagnosis between jaundice that was purely hæmolytic in origin and forms in which there was some functional derangement in the hepatic cells.

Dr. E. CRONIN LOWE said that jaundice was a symptom arising from derangement of hepatic function from many causes. Among the most common was infection of intestinal origin, the infection proceeding by way of the portal circulation. Mild jaundice could also be demonstrated in the early stages of many infections which were not portal. He considered that Van den Bergh's test should prove of great assistance in the diagnosis between gross obstruction and catarrhal cellular hepatitis. He had not found absence of post-prandial leucocytosis reliable as an indication of hepatic deficiency. All cases of jaundice without gross obstruction required extensive investigation which included examination of the gastric, intestinal, and urinary secretions, and also of the blood. When jaundice was traceable to portal infection treatment by a vaccine was of considerable value.

Dr. H. PEMBERTON said that apart from a grossly obstructive type of jaundice, which showed acholic stools, bile pigments always in the urine, and an excess of bilirubin (giving the direct Van den Bergh reaction) as well as of bile-salts in the blood, there was another group to which the term "non-obstructive" had been loosely applied. In this group bile-derivatives might be normal or in excess in the fæces, bile-pigments might be absent from the urine, but urobilin was often present, and in the blood there was a form of bilirubin which gave the indirect Van den Bergh reaction, but usually no bile-salts. Among the many types which comprised this latter group a subdivision into a type presenting mainly hæmolytic features and a type presenting mainly primary hepatic inefficiency often seemed possible; in the first type the presence of splenic enlargement, increased fragility of erythrocytes and urobilinuria often contrasted with the condition found in the second type, where lævulose estimation in the blood after a test-meal might show the abnormal curve of liver inefficiency. As a diagnostic test Van den Bergh's reaction did not seem of much value in this respect.

Dr. GORDON GULLAN said that he had seen a typical case of nervous jaundice occurring in a student every time he went up for examination; the jaundice was very deep and lasted for four or five weeks. Dr. Gullan referred to cases of Hanot's cirrhosis in which, as well as the jaundice and the great enlargement of the liver, hæmorrhages were present under the skin and the mucous membranes; in these cases some bile was also found in the stools.

CARDIFF MEDICAL SOCIETY.

A MEETING of this Society was held on April 10th, Dr. E. E. BRIERLEY, Vice-president, being in the chair.

Mr. T. E. HAMMOND read a paper on the

Surgery of the Prostate.

He said that little was known of the cause of senile enlargement of the prostate. The trouble to which an enlarged prostate might give rise could be regarded from three points of view: (*a*) changes which take place in the tumour itself; (*b*) secondary effects on the urinary apparatus; (*c*) the symptoms and complications. As to changes in the tumour itself, about 16 per cent. of tumours removed as simple adenomata showed malignant changes. As to secondary effects, the obstruction to the outflow of urine led to dilatation of the bladder, and later of the ureter and pelvis of the kidney. This gave rise to back-pressure nephritis with retention of urea in the blood, a raising of the blood pressure, and arterial changes. An impairment in the general health and the mental faculties soon followed, while uræmia was usually the cause of death. As to symptoms and complications difficult micturition was often present, but frequency might be equally distressing. The chief complications were acute retention and infection.

Treatment.—Urinary sedatives had a temporary effect on the symptoms, but did not prevent the insidious destruction of the kidney tissue. Extracts of the prostate or of the endocrine glands were useless. X rays and radium had their advocates, but it was difficult to understand why they should have an action on such a deeply situated organ as the prostate, when they had failed in similar conditions found in the more superficial breast. The results claimed were due probably to a failure to recognise the irregular course which many of these cases run, for there might be complete remission of symptoms apart from any treatment.

Three methods of treatment are available: The use of the catheter, forage of the prostate, and removal of the prostate. Catheter life was painful, gave only slight relief, and should be reserved for cases where operation is refused or is contra-indicated. Forage, the term applied to the formation of a channel through the prostate, had been revived lately through the introduction of the Brown-Buerguer cysto-urethroscope and diathermy; in cases of enlargement of the middle lobe alone the functional result was often good, but the method was useless if the lateral lobes were enlarged. Suprapubic prostatectomy gave a perfect functional result. The mortality rate was 8 per cent. for hospital patients and 3 per cent. for private patients. The earlier the operation, the less the suffering and the risk to the patient. Age in itself formed no barrier to operation. Diabetes, heart and lung conditions must be given great weight, since the operative risk is increased and the expectation of life is diminished, but debility was not necessarily a contra-indication. Difficulty and frequency called for treatment. Exaggerated sexual desire was often distressing, and, in cases where elderly men were arrested for accosting women in the parks, an enlarged prostate was often the indirect cause of the trouble. Infection would never clear up until the prostate had been removed.

The open operation, introduced by Sir John Thomson Walker, was, in Mr. Hammond's opinion, the operation of choice, but where the general health was not good he performed the older type of operation. When signs of renal inefficiency were found the prostate should be removed only after preliminary drainage of the bladder. Suprapubic prostatectomy should be reserved for the simple or so-called adenomatous enlargement; it should not be performed where the prostatic symptoms are due to a malignant prostate, a chronic inflammatory prostate, a small fibrous or irritable prostate, or a prostatic bar.

Dr. JAMES BEATTY gave a demonstration of

New Instruments for Obtaining High Microscopical Magnifications.

He showed two eye-pieces of his own invention which were infinitely variable in power within their upper and lower limits. He pointed out that these could be usefully used only if the capabilities of the microscope were thoroughly understood. There was an optimum distance of objective from object for every objective. The best possible image would only be obtained when the objective was in this position, and the maximum cone of light that the objective would stand was entering it. This critical image could only be obtained if certain conditions, outlined by Dr. Beatty, were present. The new appliances shown were meant to be used only on the critical image, and the merit claimed for them was that a microscopist possessing one or other of them and Nos. 2 and 4 eye-

pieces (and an extra No. 2 in the case of one of the new instruments) could obtain any magnification whatever producible by eye-piecing from about × 9 to about × 40. In one of them two eye-pieces were used, one acting as an objective; in the other a concave lens was used to produce the variation in magnification. By working with the critical image and varying the power of the eye-piece as required within the limits that the image would stand much of the work at present done with an oil-immersion 1–12th inch lens could be done with a 1–6th inch.

BATH CLINICAL SOCIETY.

A MEETING was held on April 6th, Mr. W. G. MUMFORD, the President, being in the chair, when a discussion was held on

Indigestion, its Varieties and Treatment.

Dr. C. S. FLEMMING spoke from the point of view of the general practitioner. He dealt with the question of pain, which is so frequently complained of by patients, and is so difficult to explain. He also raised the questions of the efficacy of various diets and of the administration of alkalies.

Dr. F. G. THOMSON, speaking as a physician, defined the term indigestion as a condition involving pain, eructation of gas or sour fluid, and vomiting. He dealt with its treatment both by general means and by drugs. He pointed out the association of dyspeptic symptoms with oral sepsis, pulmonary tuberculosis, and cardiac disease.

Mr. F. FRASER spoke from the standpoint of the surgeon. He remarked on the failure to diagnose cancer of the stomach in the early operable stages, and indicated the signs of this condition which he had found reliable. Of these continuous pain was the most prominent. He then dealt with the unreliability of the differential diagnosis of the various surgical cases showing symptoms of dyspepsia.

The discussion was continued by Dr. C. EDE, Dr. C. A. MARSH, and Dr. D. A. MITCHELL, who dealt with duodenal ileus; Dr. H. C. HEATHCOTE and Dr. R. G. GORDON, who dealt with dyspepsia of psychogenic origin; and Mr. J. H. NIXON, Dr. V. M. COATES, and Mr. C. H. TERRY.

ABERDEEN MEDICO-CHIRURGICAL SOCIETY.

A MEETING of this Society was held on April 5th, Dr. ALEX. OGSTON, the President, being in the chair. A lantern demonstration on Pelvic Hernia (Prolapsus Uteri) was given by Mr. ALEXANDER DON and Mr. VICTOR DON. The anatomy of the pelvic floor was shown, and the authors pointed out that the real support was formed by the levators, coccygei, &c., and their coverings the true fascia of the muscles. Sections of the pelvis showed the subperitoneal tissues impregnated with fat with no definite ligamentous bands. The physiology affecting the abdomino-pelvic pressure was fully explained, showing that gravity had little to do with prolapse, or the so-called ligaments with retention of organs, the onus being entirely on the pelvic muscles and their fascial coverings. A new operation founded on the methods which have proved successful in dealing with herniæ elsewhere was demonstrated, in which the edges of the levators were brought together and their fascial coverings overlapped; or, if these were found much scarred or thinned, a piece of fascia lata from the thigh was introduced to strengthen the support. Operations which depended on the suturing of connective tissues only were condemned as unreliable. The authors have not had sufficient experience of the results, but the operation was stated to be comparatively simple and safe, and healing was ensured by gentle handling of the tissues.

Reviews and Notices of Books.

THE PHYSIOLOGY OF TWINNING.

By H. H. NEWMAN, Professor of Zoology in the University of Chicago. University Press, Chicago. 1923. Pp. 230. $1.75.

THIS very interesting book is a sequel to the Biology of Twins by the same author published in 1917. It deals only with "true" twins—that is, pairs of individuals derived from single eggs—and covers the whole animal series instead of being limited to mammals, as was the former book. Such a process of reproduction occurs normally in earthworms, as was discovered by Kleinenberg nearly 50 years ago, and to an extraordinary degree in some armadillos. In the Texas armadillo (*Dasypus novemcinctus*) the early embryo divides into two symmetrical longitudinal halves, and each of these divides again, so that normally four "identical" young are produced from a single egg. In a South American species (*D. hybridus*) three such twinnings are normal and a fourth may occur, so that as many as 12 embryos may arise from one egg. In man the same process may result in two separate individuals; this is represented by the familiar identical twins of the same sex with one placenta. Or at the other end of the scale one of the individuals may be represented by a teratoma, and presentations of all the intermediate stages are found in Siamese twins, the various double monsters, the rare condition of hemihypertrophy, and probably in transpositions of the viscera, one of the two mirror-imaging individuals being in this last case suppressed. In making his survey of the subject the author is concerned to emphasise two points. He insists that double embryos are always produced by fission from one egg rather than by fusion from two. Fission may take place at any stage of early development—by division of the blastoderm, by double gastrulation, or by partial or complete separation of the halves of a single embryonic axis. And in discussing one case after another he always brings forward his generalisation that the fundamental cause of twinning is a lowered rate of metabolism and growth during which the embryo loses the functional orientation to which recent experimental zoologists attach so much importance. Arey has recently pointed out that monozygotic human twins are much more frequent in tubal than normal pregnancies. It is curious that Prof. Newman says that double monsters are unknown among mollusca; Pelseneer has published many examples of double and multiple embryos.

For its substance the book is perhaps rather overlong. We would indeed suggest that when a new edition is called for it would be better to reduce this and the author's previous work to a single volume, which would then be an extraordinarily useful and suggestive book to workers in many fields.

REGIONAL ANÆSTHESIA.

By GASTON LABAT, M.D., Lecturer on Regional Anæsthesia at the New York University. London and Philadelphia: W. B. Saunders Company. 1922. Pp. 496. 35*s*.

CERTAIN drawbacks have arisen from the high state of perfection which the art of inducing general anæsthesia has reached in this country, the chief of which is that but little attention has been paid to the possibilities of local anæsthesia. There are few English surgeons or anæsthetists particularly skilled in all the methods of regional anæsthesia. In general its possibilities are unknown. A perusal of this book shows how carefully the technique has been worked out and how it may be employed for almost any operation. It is obviously more easy to employ these methods in patients of the stolid unimaginative kind, for the injection of the anæsthetic itself would be very disturbing to the highly-strung individual;

such a one would scarcely submit to the 12 or 14 needle-pricks which are necessary for a laparotomy in order to block the abdominal nerves in front and the splanchnics behind. But often in old weak people or when there is the toxæmia of acute intestinal obstruction, regional methods have many advantages, and fortunately such patients have dulled sensibility. In other parts of the body local anæsthesia is more easy to induce and correspondingly more useful. The author is very clear in his descriptions of technique, the book is beautifully illustrated, but a statement of the percentage of failures in such methods as paravertebral and splanchnic anæsthesias would have rendered it even more valuable. The latter procedure is apt to fail in the most skilled hands.

For those who wish to practise regional anæsthesia this book is as good a guide as any in the English language.

THE CAPILLARIES.

The Anatomy and Physiology of Capillaries. By AUGUST KROGH, Ph.D., LL.D., Professor of Zoö-Physiology, Copenhagen University. (Silliman Memorial Lecture.) London: Humphrey Milford, Oxford University Press. 1922. Pp. 276. 13*s.* 6*d.*

ALTHOUGH the capillaries represent the most important part of the circulation, it is surprising that accurate investigation of their properties has been deferred until the present decade. Although Prof. Krogh, with characteristic modesty, would have us infer that his own researches in this field are merely an extension of the work of various earlier investigators, physiologists recognise him as a real pioneer, because his writings have so beautifully integrated the experimental results of his predecessors as well as adding much of great significance to their achievements. If any object-lesson were needed of the folly of divorcing histology and biochemistry from the purview of biology and physiology, we have it here, for Prof. Krogh has viewed his problem from all these standpoints, and achieved results unattainable from any single one. The book, written in English of which the author may well feel proud, marks an epoch in the physiology of the circulation, and should be read by all clinicians who view their subject from the scientific aspect, as it will certainly be read by physiologists all over the world. Our congratulations are extended, not only to the author, but to the Silliman Trustees, on their choice of lecturer.

FOOD VITAMINS.

Vital Factors of Foods, Vitamins, and Nutrition. By CARLETON ELLIS, S.B., F.C.S., Consulting Chemist, author of "Hydrogenation of Oils," &c.; and ANNE LOUISE MACLEOD, Ph.D., Associate Professor of Chemistry, Vassar College. London: Chapman and Hall, Ltd. 1923. Pp. 391. 25*s.*

THERE are so many books dealing with vitamins already on the market, that it is a little difficult to understand the motives which prompt authors to add to their number. The present book is quite as good as many of its contemporaries, and provides a satisfactory account of a subject which is in danger of becoming rather dull from over-emphasis and vain repetition. The account given in this volume appears to be complete and well written, though the historical perspective does not seem always to be accurate; the method of treatment adopted is to give abstracts of the work of most of the investigators who have given attention to the subject; where views conflict, the reader is left to choose between them for himself. The book is thus more valuable as a guide to the literature on the subject than as a digested presentation of results. The literature quoted is especially full, and is given not only by footnote references, but also in the form of a classified index of results showing the distribution of vitamins in an incredible variety of foodstuffs.

LECTURES ON DIETETICS.

By MAX EINHORN, M.D., Emeritus Professor of Medicine at the New York Post-Graduate Medical School and Hospital; Visiting Physician to the Lenox Hill Hospital, New York. London and Philadelphia: W. B. Saunders Company. 1922. Pp. 244. 10*s.* 6*d.*

THIS is a revised and enlarged edition of a series of post-graduate lectures on dietetics. General principles rather than detailed regimes are dealt with, and on this the writer may be heartily congratulated, for it saves his book from the dogmatism which makes many larger volumes illogical and unreadable. Special chapters on duodenal and rectal feeding are of great practical value, and the short account of the Allen treatment of diabetes is well written. We regret that Prof. Einhorn has not devoted a special chapter to peptic ulcer, but doubtless he feels the subject too vast to be compressed into a small volume of this type.

GREEN'S MANUAL OF PATHOLOGY AND MORBID ANATOMY.

Thirteenth edition. Revised and enlarged by W. CECIL BOSANQUET, M.A., M.D., F.R.C.P., Physician (late Pathologist) to Charing Cross Hospital, &c., and G. S. WILSON, M.D., M.R.C.P., D.P.H., Demonstrator in Bacteriology, Charing Cross Hospital Medical School. London: Baillière, Tindall and Cox. 1923. Pp. 624. 21*s.*

FEW text-books have enjoyed so successful a career as Green's Pathology. For over 50 years it has been in demand among medical students, and its popularity shows no signs of declining. Its vogue is easily explained. Without being unduly bulky, it contains sufficient to meet the needs of the qualifying examinations, and successive editors have modernised it without robbing it of those features which originally distinguished it from other manuals on the same subject. The present edition has been extensively revised and rearranged, and additional matter incorporating the work of the last few years has been inserted where necessary. There are also several new figures, though some of these are hardly as good as they might be. The book is well bound and printed, and is, for a post-war publication, extremely cheap.

THE ANIMAL AND ITS ENVIRONMENT.

A Text-book of the Natural History of Animals. By L. A. BORRADAILE, D.Sc., Lecturer in Zoology in the University of Cambridge. London: Henry Frowde and Hodder and Stoughton. 1923. With 426 text figures and 4 coloured plates. Pp. 399. 18*s.*

BIOLOGY is just now maintaining a place in the medical curriculum with some difficulty and has long occupied a strangely minor position, though medicine cannot be other than a branch of applied biology. Of the value of a sound discipline in morphology and of the educational work of the larger conceptions of comparative anatomy there can, however, be no question; and if to these formal studies there had been added more of the sort of biology dealt with by Dr. Borradaile, projects to relegate the subject to a subsidiary position in the physiological department would be treated with contempt. The archæological fascination of unravelling the past has had an undue share of attention; we are told even now that the object of studying embryology is to elucidate descent.

The modern development of interest in the relations of live animals and plants to one another and to their present surroundings has not yet been adequately reflected in the elementary curricula. Dr. Borradaile's work is therefore very welcome. With hardly any reference to evolution—well catered for already—he deals in order with the relation of animals to their physical surroundings and to animals of the same and different species, with the characteristics of marine,

fresh-water, and land animals, with parasites and other similar topics. The subjects are, of course, of vast extent and the treatment is therefore necessarily condensed and nowhere exhaustive; the chapters would, indeed, make excellent frameworks for courses of lectures. Planned primarily for students, the book needs close reading, and the quantity of information contained in it is very considerable. It is also suggestive to a high degree, and we can imagine that the reader will often want to know where he could find more about this or that topic. Unfortunately, there are practically no references; indications of the existence of such books as Murray's "Ocean" in the Home University Library, Poulton's "Colours of Animals," Flatteley and Walton's "Biology of the Sea-shore," L. J. Henderson's "Fitness of the Environment," and so on would be very useful to the student who has no advisers ready to hand. The illustrations are abundant and with their legends supplement the text a good deal; some of them are very old friends, but their varied nature adds to the excitement and interest of the book.

MALAY POISONS AND CHARM CURES.

Second edition. By JOHN D. GIMLETTE, M.R.C.S., L.R.C.P., Residency Surgeon of Kelantan. London: J. and A. Churchill. 1923. Pp. 260. 8*s.* 6*d.*

WHEN in THE LANCET of May 22nd, 1915, we reviewed the first edition of this excellent book we expressed a wish that Mr. Gimlette would continue his researches into Malay poisons, and we congratulate him on the fact that he has done so. In this edition, to which Sir W. H. Willcox has written a foreword, the author goes considerably more fully into the subject. Kelantan, and we daresay other portions of the Malay Peninsula, must be a paradise for the poisoner, so many and so varied are the poisonous animals, insects, and plants. Sir W. H. Willcox mentions in his foreword that 18 animal poisons and 23 vegetable poisons have as yet their active principles undetermined. Mr. Gimlette mentions one method of administering poison which was commonly used, so tradition says, in the Middle Ages in Europe—namely, by dividing a fruit or a melon with a knife, one side of which has been smeared with poison, cyanide being generally used in Trengannu, which borders on Kelantan. Among the vegetable poisons used are the sap or the resin of trees known as Jitong and Rengas. Workers in Rengas wood are liable to painful eruptions on the skin caused by sawing the wood and a similar effect has been noticed and was commented on not long ago in the case of workers in other woods. Mr. Gimlette's chapters on spells and charms are of extreme interest as showing, among other matters, how consistent human nature is from age to age. For instance, on p. 45 is an account of a "bomor"—i.e., a Malay medicine-man—who treated the pain caused by a bite from a non-poisonous snake by blowing on the bitten limb. Mr. Gimlette quotes from a writer to the *Times* of 1919 an account of a herbalist in the East-End of London who cured scalds by blowing on the blisters, and a similar story comes from Belfast and is given in the *Daily Express* of Jan. 23rd, 1923. In this case, however, the child died from sepsis. On p. 96 we have an account of the old old superstition of the waxen image made in the likeness of the person whom it is desired to slay, and pierced with pins. The value of Mr. Gimlette's book is increased by the full bibliographical references at the end of every chapter and by an admirable index.

JOURNALS.

BRITISH JOURNAL OF EXPERIMENTAL PATHOLOGY. Vol. IV., No. 2, April, 1923.—On the Behaviour of Platelets in Vitamin-A Deficiency and on the Technique of Counting Them, W. Cramer, A. H. Drew, and J. C. Mottram. The authors confirm their observations that there is a constant deep thrombopenia in vitamin-A deficiency, which they now suggest is due to adsorption of platelets by bacteria which enter the body through the intestinal tract. They discuss S. P. Bedson's and S. S. Zilva's criticism of their work and conclude that these authors have used a faulty optical system in their microscopic technique.—A Suggested Substitute for Canada Balsam as a Mounting Medium, H. W. Southgate. Yucatan Elemi is recommended as a substitute for Canada balsam, over which it has distinct advantages, one being the better retention of colours in preparations mounted in it.—Growth and Differentiation in Tissue Cultures, A. H. Drew.—On the Mode of Production of Bacteriophage, Elizabeth H. Lepper. The strength of a given bacteriophage is not increased by allowing it to kill and lyse sensitive bacilli, but there is some evidence that increase in lysin is associated with proliferation of the resistant type of bacillus; the experiments on which these and other conclusions are based are described in detail.—The Detection of Spironema Pallidum, J. E. Barnard. An important point in the recognition of *S. pallidum* is the relation of the number of spirals to a given length, and a convenient unit of length is the diameter of the erythrocyte. Since red blood corpuscles are not always abundant in the material to be examined, the author has devised a graticule which, if placed on the diaphragm of the ocular, produces in the microscopic image clear circles which imitate accurately red blood corpuscles.—Investigation of the Ætiology of Typhus Fever, especially undertaken for the Egyptian Government in the Public Health Laboratories, Cairo, J. A. Arkwright and the late A. W. Bacot. The virus of typhus in blood is found in much greater concentration in a platelet emulsion than in other parts of the blood. Lice infected with *R. prowazeki* are infective for guinea-pigs whether an emulsion of the lice themselves or of their excreta is used for the inoculation. The excreta of such lice remains active as a dry powder at room temperature for 11 days. While there is no evidence that rickettsia can be transmitted by the lice in the act of biting, the virus in the fæces can enter the body through abrasions, &c.—The Brain and Immunity Reactions to Jensen's Rat Sarcoma, W. S. Lazarus-Barlow and R. H. Parray. Intracerebral inoculations of non-radiated or heavily-radiated grafts produce a general resistance to inoculation greater than that brought about by subcutaneous inoculation of similar material. The growth of a graft in the brain is restrained and delayed as compared with one in the subcutaneous tissue.—The Relative Concentration Ratios of Some Constituents of the Urine, S. W. F. Underhill. Urea and creatinine are evenly distributed between the plasma and the corpuscles in the blood of the cat, but after injection of these substances into the blood stream there may be a greater proportion in the plasma. A larger proportion of injected inorganic phosphate and uric acid is found in the plasma than in the corpuscles.—Vascular Changes Affecting Bulbar Nerve Centres, D. T. Barry. An investigation into the variations in tone and excitability of bulbar centres brought about by changes in the supply and in the hæmoglobin content of the blood.

THE TROPICAL DISEASES BULLETIN for March contains reviews of recent literature on yaws, tuberculosis, and helminthiasis. Ten papers on yaws are summarised by A. G. Bagshawe, including the recently published clinical study by R. L. Spittel. Tuberculosis in the tropics, an extensive and very important subject, is discussed in a series of 20 reviews by S. L. Cummins, who draws the attention of tuberculosis specialists in this country to this important aspect of the subject, and as he remarks, one is apt to regard the disease solely from their standpoint, not recognising that the manifestations of tuberculosis in the tropics differ considerably from those seen in temperate climates. A total of 165 papers on helminthiasis are summarised for the most part by R. T. Leiper, assisted by H. Harold Scott.

INSULIN AND THE TREATMENT OF DIABETES: SOME CLINICAL RESULTS.

A REPORT TO THE MEDICAL RESEARCH COUNCIL.

WE have published in these columns the announcements from the Medical Research Council[1] explaining the measures which have been taken in this country for studying the production and the properties of insulin, and for promoting its manufacture upon a large scale. The last of these announcements promised the communication to the medical profession at an early date of the results of the treatment as now, and for the past months, in progress at various hospitals, so that the experience gained in the clinical researches should inform and guide the profession.

The present statement is, accordingly, a clinical report upon the uses of insulin, and is the outcome of a conference held at the offices of the Medical Research Council. It gives a general summary of the clinical experience of workers in various clinics in London (University College, the London, St. Bartholomew's, Guy's, St. Thomas's), Sheffield, Edinburgh, and Glasgow, these being the centres at which the Council had organised a local laboratory production of insulin and its clinical study. The workers had the advantage of using insulin prepared, under the directions of the Medical Research Council, in the laboratories of the medical schools attached to each hospital, and have been in close coöperation with workers at the National Institute for Medical Research. Latterly samples of insulin prepared by commercial firms have also been used for these clinical investigations, and the results have been found to be identical with those obtained from the products of the various research laboratories.

EXTENT AND NATURE OF CLINICAL TESTS.

The clinical workers have nowhere attempted the quick treatment of a large number of diabetics. At each hospital they have tended rather to select two or three severe cases of this disease and to study very closely the influence of insulin upon the patients week by week, following out the changes in blood-sugar, in respiratory exchange, and in general metabolism, all in great detail with reference to a dietary controlled by precise measurement. The ultimate results of these investigations may throw light upon the metabolic derangements underlying the phenomena of diabetes, and individual papers relating to this work at the various research centres will doubtless appear in course of time. But other physicians wishing to begin the treatment of patients with the insulin that is now available from commercial sources may find some help in an account that presents the general experiences of those who have hitherto been using the product in this country.

Insulin has been used clinically at eight different hospitals for a period of study of about three months at each. The total number of diabetics treated has been small, less than 50, and it included only seven examples of coma. Except in the cases of coma, the patients have all shown admirable improvement, just as was described by the Canadian workers. The blood-sugar falls rapidly as the temporary result of each injection, and sugar may be prevented from appearing in the urine even on a diet so generous as to be three- or four-fold as great as that which the patient could previously tolerate. There is a steady increase of weight together with a sense of greater warmth and energy. The phenomena usually ascribed to deficient metabolism of fats are especially influenced. Acetone vanishes from the breath and aceto-acetic acid from the urine; lipæmia disappears; acidosis and dyspnœa are at once controlled. It is, however, necessary to insist, by way of caution, that these immediately satisfactory results have been obtained only with insulin. Some other commercial extracts of the pancreas that may at present be bought in the market, for hypodermic or other forms of administration, were tested and found to be totally inert in respect of any power to produce the least fall of blood-sugar, even in a rabbit.

No substitute has yet been found for the hypodermic method of giving insulin. The injections have to be repeated at least once each day. They can control all the ordinary phenomena of diabetes, but the effect of each injection is only transient. As yet there is no satisfactory evidence—time has hardly allowed of that—to show that diabetes in its most serious forms can be completely cured by insulin. It may be that the great majority of severe cases cannot hope for more than prolongation of life, with greater strength and ampler dietary, but only at the cost of continuous treatment with insulin.

GENERAL PRINCIPLES OF ADMINISTRATION.

The insulin is procured by alcoholic extraction of pancreas from the abattoirs. By a complicated alcoholic fractionation, and other processes of fractional precipitation, the active constituent is obtained in a state of relative purity, and is put up in sterile watery solution with a trace of antiseptic added. Ampoules of solution should be kept in the cold wherever possible. The injection should be made with a fine needle, preferably under the skin of the upper arm. A slight tingling or discomfort may be caused for a few minutes, but no prolonged effects of local irritation or reaction have occurred, and the same place may be used again and again for injections.

The unit dose is not measured by reference to the weight of substance taken into solution, but by determining the volume of final solution required to reduce the blood-sugar of a 2-kilo. rabbit under standard conditions to about 0·04 per cent., at which level convulsions appear. Three units, as at present defined, produce this effect in a rabbit; or the units may be calculated by observations on mice under similar standard conditions. The average single dose for an adult patient is 10 new style units, but the administration should always be guided by thought in units rather than in the so-called doses.

In a healthy subject, starved previously for 15 hours and remaining without food, 30 units will cause a fall of blood-sugar commencing in less than half an hour and progressing for about three hours. The fall may be from the normal level of about 0·12 per cent., or 0·1 per cent. down to 0·06 per cent., near which level definite and serious features of sugar deficiency are likely to appear. A larger dose of insulin is required to produce this critical fall in the healthy human being, where the liver is full of stored glycogen, than is an emaciated diabetic. In the latter a rapid fall in blood-sugar and the development of hypoglycæmic features do occur much more readily.

The similarly produced insulin hypoglycæmia in a rabbit is attended by convulsions, coma, and muscular flaccidity. The rabbit remains apparently moribund, and without treatment may die in an hour or two; but the intravenous injection of glucose solution at this stage will in a couple of minutes restore an unconscious and convulsed animal into an apparently normal creature that will probably begin at once to nibble food again. Subcutaneous injection of glucose solution is equally effective, though 10 or 15 minutes are then needed for recovery. The parallel phenomena of insulin hypoglycæmia in the human patient are described later. They can be checked at once by the administration of glucose, but their occurrence should be avoided altogether by carefully attending to the time when insulin is given in relationship to food.

[1] THE LANCET, Nov. 17th, 1922, Feb. 21st and April 21st, 1923.

Administration in Relation to Food.

Insulin should never be given during periods of abstinence from food. Glucose reaches the blood very soon after a meal, and continues to do so for two or four hours, varying with the nature of the meal, whether carbohydrate or protein. The effect of insulin lasts for a period up to eight hours, but there is little danger of serious features developing after the fifth hour. Therefore each injection should be followed by a meal in about a quarter of an hour, and fresh food should be given every three or four hours subsequently until the insulin effect has passed beyond such activity as might reduce the blood-sugar to a seriously low level. It is obviously safer to give two small doses at fully spaced intervals rather than one large dose daily, and a large dose should never be given in the evening, for serious changes might arise unnoticed during the time of sleep and abstinence from food. One worker found that 1 unit of insulin could provide for the efficient consumption of 2 g. carbohydrate taken as such in the food of a completely diabetic patient. Protein food contains nearly half its weight of potential carbohydrate, so that the same dose of insulin should provide for at least 4 g. of protein. But the carbohydrate from protein enters the blood much more slowly than does that of carbohydrate food taken directly as such. Moreover, diabetic patients vary greatly in the amount of insulin required to cover the food taken, while even the individual patient may vary from time to time in his needs.

It is therefore impossible at present to state the doses of insulin needed in respect of any scale of diet. Each patient must be tried separately with regard to his own individual requirement, and the dosage subsequently watched for possible changes in the amount needed.

DANGER OF HYPOGLYCÆMIC COLLAPSE.

The results of an excessive dosage of insulin were rarely seen. At two of the centres there was no experience at all of them. Other workers saw them to a moderate degree, particularly in cases where diabetic patients were given insulin during periods of starvation for the purpose of studying its influence on the standard metabolism. The reaction, which usually appeared three or four hours after insulin injection, commenced often with a sense of weakness, sometimes associated with free perspiration. Faintness, dizziness, and mistiness of vision were added to this; and the patient might either feel drowsy, as though going quietly under an anæsthetic, or show intense anxiety from the sense of rapidly advancing and overwhelming weakness. The nervous reflexes were simply depressed but not otherwise changed. The blood-sugar was then usually down to 0·06 or 0·05 per cent. Prompt recovery in 10 or 15 minutes was easily obtained by giving glucose from 10 to 20 g., or about ½ oz. drunk in 3 or 4 oz. of water.

Cases that through lack of proper vigilance might have been allowed to pass into unconsciousness would require subcutaneous or intravenous injections of glucose solution (5 per cent. in normal saline). Milder cases at the onset of collapse can be treated by cane sugar. Glucose is not essential except for intravenous injection. No fatalities from this cause have been observed in Great Britain, and the experience of the first three months would suggest that the danger from it is slight. That happy result is, however, not to be taken as evidence that the danger is negligible, but rather to be ascribed to the close attention that was given daily to those patients and to the repeated measurements of their blood-sugar curves. Unnoticed changes in the sugar variation of a diabetic might easily occasion a serious insulin collapse; or the reaction might follow from some quite trivial chance, such as a patient for some reason or other leaving uneaten the meal that was ordered to follow an injection of insulin.

An Illustrative Case.

An instance that did occur in one hospital ward recently may be quoted in full, since it illustrates emphatically the great need of care in using this new and powerful method of treatment.

CASE A.—A man, aged 62, who had suffered from diabetes mellitus for seven years. He was greatly emaciated. He had ataxia of the legs, the knee-jerks were absent; he presented Romberg's sign and optic neuritis. The Wassermann reaction was negative. There was no evidence of cerebral tumour. During nine days after admission the patient was kept on 53 g. of fat, 84 g. of protein, and 107 g. of carbohydrate, in order that his ketosis might improve. This it rapidly did. He retained on the average about 50 g. of carbohydrate, the urine-sugar averaging between 50 and 60 g. per diem.

April 4th. The fasting blood-sugar was 0·33 per cent. The administration of insulin began, 10 units being given three times a day. Diet consisted of 108 g. carbohydrate, 85 g. protein, and 54 g. of fat. The urine on this date became free of sugar.

April 5th. Thirty units of insulin. At 3 P.M. patient says he has been perspiring since 2 P.M., especially noticeable on the head. He feels rather sick and irritable, but seems quite well.

April 6th. Yesterday's urine was free from sugar and acetone. Usual dose insulin 10 units given at 6 A.M. Patient feels well this morning, but is even more hungry than usual. Feels quite well but rather tired. 1 P.M.: 10 units insulin given. Usual dinner. 2.30 P.M.: The patient got up to shave and wash. He returned to bed about 3 P.M., and felt a glow going all over him and he began to perspire, felt slightly sick and very irritable. At 3.30 P.M. he had a short sleep—he said he had a feeling of apprehension. 3.45 P.M.: The patient awoke in a violent rage, swearing and shouting at another patient in the room for no apparent reason. He was perspiring profusely. Eyes staring. Speech very thick. No twitching. Pulse feeble but not rapid. Whisky 1 oz. in 180 c.cm. hot water given. Patient drank this easily and said he felt better, though he began to feel shivery. Face looked very congested and veins on temples were very prominent. Pulse improved after the stimulant, but patient gradually became more helpless and said he felt "drunk." Saliva dribbling. 4.10 P.M.: The patient cannot hold his head straight (falls to right side), great difficulty in swallowing, the tea coming down his nose. He ate half an egg and a little tea (usual dose of insulin not given). At 4.15 P.M. he was much paler, skin still very moist and cold; cannot speak at all. Unable to swallow. 5.15 P.M.: Patient quite unconscious; incontinence of urine. Blood taken for sugar=0·09 per cent. Moaning continually, with occasional very loud groans (almost a roar). Cannot swallow glucose prepared. 6 P.M.: Intravenous injection of glucose, 45 g. in 450 c.cm. normal saline solution. 6.5 P.M.: Groaning stopped, and patient opened his eyes and became very restless. 6.10 P.M.: Consciousness regained; dribbling of saliva stopped. Patient began to speak, saying that his throat was sore and he felt very cold. Glucose, 25 g. in 240 c.cm. water, and lime-juice given by mouth and swallowed easily. 7 P.M.: Patient sitting up in bed, feeling well and hungry and much warmer. He remembers nothing from the time when his tea was brought in at 4 P.M. until 6.30 P.M. He remembers the onset of the attack very distinctly, and says he knows he lost all control and was shouting and swearing when the attack came on. He says the irritability seemed to "come over him in waves," leaving him with a feeling of nausea. 7.15 P.M.: Patient ate supper—egg, cauliflower 100 g., oatcake 30 g., butter 15 g., two cups of coffee, cream 60 c.cm.

April 7th. Patient feeling very much better. On previous day the urine contained 6 g. sugar, although 154 g. carbohydrate, 74 g. protein, and 108 g. fat had been taken in his diet.

Since April 8th only small traces of sugar have appeared in the urine, in spite of the diet consisting of between 140 to 150 g. carbohydrate, 78 g. protein, and 150 fat. There has been a steady improvement, blood-sugar remaining at about 0·150 per cent., but on a number of occasions there have been signs of hypoglycæmia. These usually occurred in the late afternoon. The amounts of insulin vary between 20 and 30 units per day. It is apparent in this case that symptoms due to hypoglycæmia occurred very readily as during the severe attack the blood-sugar had only decreased to 0·09 per cent.

If insulin be given to patients in such amounts as to keep the urine free from sugar the dosage must be frequently checked by blood-sugar determinations. And for all cases under insulin treatment glucose or cane-sugar must be kept ready at hand, so that a small quantity may be given to the patient as soon

as any premonitory symptoms of hypoglycæmia are noticed.

SELECTION OF PATIENTS.

The instructions drawn up by the Committee advising the Ministry of Health upon the use of insulin require that there shall be no luxury use of this product until supplies are abundant. Mild cases of glycosuria or diabetes are therefore excluded, and with these would automatically be classed those cases (renal glycosuria) where sugar is present in the urine for three or four hours after food, owing to excessive permeability of the kidney, though the blood-sugar is not raised above the normal percentage, and the patient remains otherwise in good health.

It is obvious that whenever insulin becomes available for the treatment of mild cases, great care will need to be exercised in the exclusion of such cases of renal glycosuria from insulin administration since they would be likely to show early and dangerous hypoglycæmic collapse. All ordinary diabetics should, in the first place, be put on a restricted diet with some periods of starvation—as, for example, by the Allen or Graham procedure—and their treatment continued simply in this way on the lines established by workers in the years immediately preceding the introduction of insulin.

If the diabetes is not of long standing and the patient not greatly wasted, this treatment would probably suffice, or might need only slight assistance later with insulin. But if the disease is of long duration, with proved excess of blood-sugar, and the patient fails after starvation to tolerate any diet of less value than about 1000 calories in the 24 hours, so that strength and weight continue to fail seriously, then insulin should be given systematically.

The cases hitherto treated at the research centres have all been of this severe type. The reasons for this choice were two: In the first place, the supply of insulin made at each hospital laboratory was small, and it was naturally reserved for those patients who were so seriously ill that without the aid of the new treatment they could not have been expected to live many months longer. Secondly, these serious cases, in whom failure of ordinary treatment by dieting over a long period had proved the almost complete decay of the patient's natural mechanism for the proper metabolism of carbohydrates and fats, gave an opportunity for demonstrating clearly and at once in each individual case the powerful effect of insulin against the background of complete diabetes. Mild or acute cases of diabetes often recover so well during the first course of dietetic treatment without any aid from insulin that it would have been necessary to study a considerable number of them in order to demonstrate convincingly the effect of insulin.

THE MANAGEMENT OF TREATMENT.

The method of controlling the diet varied in the different centres, and it is needless to discuss the details of this, because every physician has developed in the course of his experience in the treatment of diabetics his own individual rules for the construction of a dietary; and there was only one instance, to which reference is made later (Case E), suggesting that a special arrangement of the proportions of foodstuffs may be combined with the action of insulin in such a way as to lead to a sustained improvement in the patient's own tolerance of carbohydrate. The general experience was that insulin acted simply as a temporary instrument to enable a diabetic to eat a certain amount of more food than he could previously tolerate without the appearance of sugar or acetone bodies in the urine and without a rise in his blood-sugar. Each dose of insulin, therefore, enabled him to get more energy out of the food and to increase the reserve stored up in his tissues as evidenced by increase of weight. Only a progressive increase of weight over several weeks was accepted as proof of tissue increase, for there was reason to believe that part of the increase of weight was due simply to increased retention of water in the body.

Dosage in Severe Cases.

The following cases are quoted, briefly, to illustrate the doses of insulin needed in severe cases:—

CASE B.—Woman, 56 years old, with steadily progressive and very severe diabetes. During the last 18 months she had repeatedly undergone dietetic treatment in hospital, at first with immediate success, but ultimately tolerance could not be established on any diet sufficient to maintain life.

After five days' continued starvation, the urine became sugar-free. The subsequent tolerance was of a diet of only 190 calories in 24 hours.

By the administration of 60 units of insulin each day she was enabled to tolerate 1350 calories daily, with 80 g. carbohydrate, and her weight was raised in ten weeks from 5 st. 10 lb. to 7 st. During the day the urine was sugar-free and contained no acetone bodies on this diet; but each morning the blood-sugar was over 0·4 per cent., and the urine contained sugar and a trace of ketone from the failure of her own unaided metabolic processes during the night.

CASE C.—Man, aged 18, with severe diabetes for three years. On a diet of 600 calories, containing 20 g. carbohydrate, he excreted 30 g. of sugar daily. With insulin, about 12 units daily, he could tolerate a diet of 1400 calories daily, containing 48 g. carbohydrate, the urine being sugar-free and the blood-sugar below 0·2 per cent. His weight and strength have steadily increased.

CASE D.—A very severe case, who had been kept just alive for the two months preceding insulin treatment on a diet of 600 to 800 calories daily. On this he was excreting large amounts of sugar and ketone bodies, and seemed unlikely to survive many weeks. Insulin twice daily enabled such increase of diet to be made that there was a gain of weight of 15 lb. in the first fortnight. He was eventually raised to 2500 calories with 70 g. carbohydrate, upon which, with slight glycosuria, he was able to return to work while continuing insulin injections twice daily.

Aim at Real Amelioration.

The doses in severe cases may be from 10 to 20 or even 30 units twice a day, or a smaller amount divided between three doses. Patients with so grave a form of the disease plainly ought to be treated at first in special institutions, where the diet can be closely controlled and the blood-sugar frequently determined. If, after treatment has commenced, only one measurement of the blood-sugar is made occasionally, it should be from a sample taken at the same time daily and three hours after the injection of insulin and the consumption of a meal directly related to that injection. With such precautions it may be possible to give enough insulin to keep the urine entirely sugar-free, and that condition would seem to be the ideal aim when hopes of ultimate cure or real amelioration are entertained. The essential principle in the treatment of diabetics by diet control alone has been generally recognised to be the avoidance of hyperglycæmia and glycosuria, so that the intrinsic powers of carbohydrate metabolism may be slowly regained in the long period of comparative rest from overstrain. Insulin ought to aid this rest period. But if insulin is given in such amounts as to prevent the appearance of sugar in the urine, there are no means of estimating the full effect of the dose except by watching the blood-sugar. If the latter cannot be done sufficiently often it is probably safer to avoid the danger of hypoglycæmic collapse from too much insulin by reducing the dose to such a level as will just allow the patients a slight glycosuria as a safety gauge. In such conditions the patient will put on weight and recover strength, though on a road that may not be the quickest way to cure.

Real improvement was reported in one case, and here the physician believed that the good result had been attained by the exclusion of all carbohydrate as such from the increased diet under insulin. This method was not tried by the other workers, who had all allowed some carbohydrate food to their patients.

CASE E.—A man with severe diabetes, which had not yielded to rigid dietetic treatment some weeks previously in hospital. On 1360 calories, with 16 g. carbohydrate, he passed from 25 to 33 g. of sugar daily. The blood-sugar at 9 A.M. was 0·24 per cent. He was given insulin, 12 units, each day at 9 A.M. with a meal, the first meal being at 6 A.M. The 9 A.M. blood-sugar gradually fell to 0·15 per cent. It was then found that three hours after 12 units of insulin

the blood-sugar had fallen to 0·055 per cent. The daily dose of insulin was consequently reduced to a lower level at 8 units daily. There was no glycosuria for three weeks and only a small amount of ketone bodies persisted. Subsequently the insulin was reduced to 4 units daily, upon which a diet of 2000 calories, consisting chiefly of protein and fat with carbohydrate as vegetables, is tolerated without glycosuria and with a blood-sugar of 0·11 to 0·13 per cent.

It is obvious that if this dietetic method is proved to be generally applicable there will be a great economy in the use of insulin as well as a better hope of real cure. It is a most expensive method of feeding a patient when carbohydrate is given under the protection of insulin, the latter costing at present nearly 3*s.* for the control of 30 g. or one ounce of carbohydrate food when eaten by a patient with complete diabetes.

THE TREATMENT OF COMA.

Only seven cases have been treated at the various centres, and they appear to fall into two clinical groups.

Coma following Operation.

First come three cases of coma in diabetes, developing as the result of surgical operations in not very severe diabetics. In all these the blood-sugar during the coma was very high, from 0·7 to 0·8 per cent.; air-hunger and dyspnœa were not conspicuous clinical features, though unfortunately this was not checked by measurements of the alveolar carbonic dioxide or of the alkaline reserve of the blood; there was but little acetone in the breath and not much aceto-acetic acid in the urine. The cases were therefore of coma with great hyperglycæmia, but not with severe ketosis. No improvement was obtained with insulin, though only in one case was the substance given in sufficient amount to reduce the blood-sugar, and it is therefore only in the latter that failure need be admitted. The other two instances should be discarded: in one of them insulin was injected too late when the circulation had practically failed, and in the other the blood-sugar of 0·78 per cent. was virtually unaffected by 30 units of insulin.

CASE F.—A woman of 70, with gall-stones but no obvious liver disease, with arterio-sclerosis and slight diabetes. She passed into coma directly after an operation in which the gall-stones were removed. After five hours of coma the blood-sugar was 0·79 per cent. Dyspnœa moderate, with faint odour of acetone in the breath and only a slight ferric chloride reaction in the urine. No extensor response or other neurological physical signs. Insulin was given subcutaneously in repeated doses of 30 or more units. Five hours later, after a total of 105 units had been given, the blood-sugar was 0·4 per cent. Saline solution had also been given freely. There was absolutely no clinical improvement, and the patient died ten hours later. Post-mortem examination was refused. Clinically the condition appeared to be that of simple coma, though other possibilities cannot be rigidly excluded.

Ordinary Diabetic Coma.

The second group of cases, four in number, was that of ordinary diabetic coma not related to surgical operation, and showing a much lower blood-sugar, 0·3 to 0·4 per cent., but greater air-hunger, with depression of the alveolar CO_2 and with an abundance of ketone bodies in the urine. Further observations are needed before the contrast suggested between the two groups, of surgical coma in diabetes and of ordinary diabetic coma respectively, can be established. But it is obvious that the patients in the second group showed ketosis rather than hyperglycæmia, and in this group three out of four were improved in a very striking way by insulin.

CASE G.—A man was admitted to hospital on the verge of diabetic coma, being just conscious, and with extreme air-hunger as shown by the big respiratory movements of his abdomen and chest. The blood-sugar was 0·33 per cent., a figure often seen in ordinary diabetics while in fair health; but the alveolar CO_2 was 1·1 per cent., a reading so low that in the experience of the physician in charge of the case always meant death within about 12 hours, for he had never seen recovery in any patient with alveolar CO_2 lower than 1·8 per cent. Insulin, 18 units, was given; and abundance of water (15 oz. hourly), together with sodium bicarbonate 2 drachms by the mouth every two hours for three doses. In two hours the patient began to feel better, and his air-hunger was lessening at the third hour. At six hours the blood-sugar was 0·11 per cent. and the alveolar CO_2 had risen to 2·7 per cent. The patient recovered and now has a morning blood-sugar of 0·15 per cent. on 12 units daily of insulin, and a diet of 53 g. protein, 105 g. fat, and 16 g. carbohydrate in vegetables. There has been no glycosuria for three weeks.

CASE H.—A boy admitted in diabetic coma, with air-hunger and low bicarbonate reserve in the blood. Insulin given, but no sugar. Death.

CASE I.—A young woman of 25, in coma, with air-hunger, acidosis, and blood-sugar of 0·4 per cent. She was given insulin subcutaneously, 10 units, every three hours; at the same time fluid was given freely and glucose solution both intravenously and subcutaneously. The blood-sugar was thereby raised to the very high figure of 1 per cent. The patient recovered.

The last case (Case I) raises a paradox for discussion. Sugar is sometimes given together with insulin in cases of diabetic coma, with the intention of preventing the comatose state from being further aggravated by hypoglycæmic collapse. Now it appears from the cases quoted that coma may arise when the blood-sugar is not unusually high, and also that the patient may emerge from coma though the blood-sugar has been raised by added glucose to 1 per cent. On the other hand, a case (Case F) of post-surgical coma with high blood-sugar was not improved, though the blood-sugar was reduced to 0·4 per cent. by insulin. The percentage of blood-sugar, therefore, appears to bear no direct relation to the state of diabetic coma.

THE SIGNIFICANCE OF COMA.

It is, however, impossible to neglect a comparison between the states of diabetic coma and hypoglycæmic collapse, the latter being an entirely novel conception that has come into pathological thought as the result of experience with insulin. The hypoglycæmic collapse is caused by the artificial lowering of the blood-sugar to half its normal level for health, and it is at once relieved by giving sugar. The brain is therefore as sensitive to the withdrawal of sugar as to sudden diminution in its oxygen supply. It may be that one aspect of the picture of diabetic coma is due to the final inability of the brain cells to consume sugar, even though this food be presented to them in abundance in the blood. Insulin might restore their metabolic power, and their functional recovery might conceivably be aided by artificially increasing for a short time the amount of blood-sugar upon which they can commence to feed.

At any rate, whatever the theory, experience has suggested that, in the treatment of diabetic coma with insulin, glucose should be given simultaneously, either by the mouth or by the stomach-tube or even intravenously. The insulin can generally be administered by hypodermic injection. In cases of extreme circulatory collapse, it can be used intravenously without danger. In all cases fluid should at the same time be given, but not much in excess of half a pint every hour, so that the patient on recovery from the coma shall not fall into danger of death from pulmonary œdema.

The scanty experiences quoted suggest that post-surgical coma in diabetics is difficult to treat. Obviously, the best way is to avoid its occurrence altogether by careful preparation of the patient before the operation, dietetic control and insulin being used together to free the urine of ketones and sugar. There is no evidence available upon the course of such prophylactic treatment, or upon how the action of insulin may be influenced by the proceedings connected with surgical operations.

Other complications of diabetes, such as sepsis, tuberculosis, or peripheral neuritis, can presumably be influenced by insulin as favourably as they are by ordinary dietetic control, when the latter succeeds in abolishing glycosuria. But on this aspect of the general malady no evidence has been collected, for the first investigations in British hospitals were restricted to simple, though serious, instances of diabetes.

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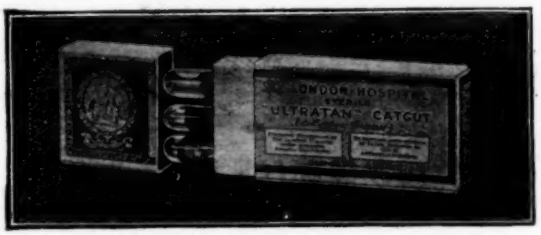

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THE NEW CURRICULUM.[1]

THE medical curriculum, as all our readers know, has been thoroughly revised; as from Jan. 1st, 1923, the students' educational course has been strengthened, simplified, and coördinated. The revision extends from the pre-registration stage of those who intend to join our numbers, through the hospital career, until satisfaction of examiners leads to registration as a practitioner. Sir GEORGE NEWMAN, in a Memorandum addressed to the Minister of Health, provides an explanation which is also a justification of an interesting programme of reform, and the document should be in the hands of all who are interested in education, lay-men as well as medical men and students, so that they may obtain a clear perception of the present training of the doctor; of the defaults which are remedied and of the better opportunities which are provided by the reforms here set out. The Memorandum follows the form of a previous document entitled, "Notes on Medical Education in England," which was published by the Board of Education five years ago. Since that date not only has the whole of the medical curriculum been changed, but new legislation has been introduced to deal with many grave evils in dental practice, new rules have been laid down to ensure practical training in sanitary science, and university clinics have been founded supported by large grants from public money. The Chief Medical Officer of the Ministry of Health deals with all the substantial modifications in medical education which are thus indicated, and shows the objective also of the university clinics, as bringing into the clinical sphere the whole scientific equipment of the medical school, as advancing learning by research, and as doing both these things in intimate coöperation with the work of the ward, the special department, and the laboratory. The Memorandum is deliberately discursive, but reforms cannot be justified until their necessity has been explained, and rules cannot be comprehended unless the situations which they have been devised to meet are made plain. An appendix gives the regulations for the new curriculum which have been laid down by the General Medical Council, enabling the reader to follow the thread of the chapters (though they are quite clearly written); but it is useful to be able at any moment to consult the actual edicts of the Council, which form a syllabus of all stages of professional study, while they also give the necessary information concerning pre-registration examinations.

What we see first in the new curriculum is that the course is planned to be continuous, and this is important as recent developments in medical education have tended to create water-tight departments. Medical excursions into chemistry, physics, and biology have been frequent and free, and along different lines a high degree of exact knowledge has been obtained. But as that knowledge became more elaborate and detailed so did the particular workers along a given line tend to concentrate upon their speciality, until the spirit of coöperation became jeopardised. The student, who could not be, and never was, expected to follow such studies in their elaboration, was not supplied with the right sort of connecting links between them, so that no general idea of a massed attack upon disease arose in his mind, enabling him to recognise certain work as preventive in its object and certain as therapeutic, one procedure as assisting in diagnosis and another in treatment. He received his instruction in isolated samples from teachers who pursued their bent in isolation. It was to meet this situation that the experiment of university clinics was instituted some three years ago, providing, in the words of Sir CLIFFORD ALLBUTT, "a professoriate; whole-time, or nearly whole-time professors, with technical laboratory, biochemical and pathological, who, with their assistant staff, shall be engaged continually in irrigating our profession from the springs of the pure sciences." The institution of the units illustrates the development of medical education. When the whole of medical education was in the hands of the practising leaders of the profession, the progress made was grand, but with that progress the need of teachers with special equipment arose. The strain upon the physicians and surgeons of the hospitals became too great, for, in addition to educational responsibilities, entailing close knowledge in directions where they themselves were but recent students, they had their duties to patients without the walls of the hospital. The appointment of whole-time or part-time professors, selected for their clinical and teaching power and approved capacity for research, was therefore determined upon, and the innovation embodies the traditional features of the British system of clinical training, while correcting defects that had arisen in that system through its own virtues in promoting our science. The experience of three years has proved the value of the units in correlating medicine and surgery, and in introducing the methods and spirit of research into medical education. The history is too brief to afford material for any dogmatic estimate of results, but that those results will be good may be expected hopefully.

A chapter in the Memorandum deals with the recommendations of the General Medical Council in respect of an improved scheme for the teaching of obstetrics and gynæcology. It is admitted that the arrangements for teaching these subjects to students have not hitherto been comparable with those concerned in the other clinical portions of the curriculum, but no emphasis need be laid upon the fact that effective teaching in this direction is one of the foremost of the student's needs. More than 50 per cent. of the confinements in the country now come under the hands of registered midwives, but that does not alter the need in the slightest, rather it is intensified thereby; for the cases which remain for medical practitioners include those complicated or serious ones where the midwife is compelled by Act of Parliament to summon medical aid. The General Medical Council has now recommended that in addition to courses of systematic instruction in the principles and practice of obstetrics and gynæcology, accompanied by attendances on in-patients and out-patients, every student shall be trained in the observation of ante-natal conditions and the principles of infant hygiene. This is a recognition of the obvious facts that preventive medicine should play a large part in obstetrics, and that in every case of labour there are two patients concerned. Why more stress has not been laid in the past upon such truisms we are left to wonder. But before obstetrics can be taught at the bedside as fully as medicine and surgery are now taught it will be necessary to discover a larger supply of maternity beds. Should we plead

[1] Recent Advances in Medical Education in England. A Memorandum addressed to the Minister of Health by Sir George Newman, Chief Medical Officer of the Ministry and of the Board of Education. H.M. Stationery Office and all Booksellers. 1*s*. 3*d*.

that in gynæcology the training of the medical student is adequate, it may fairly be retorted that the subject is not an extensive one. It is in regard to obstetrics that the insufficiency of both the clinical and systematic teaching is crying, and the main reason is that an insufficient number of beds is devoted to the subject in most of our teaching hospitals. Bedside instruction on labour cases ought, moreover, to be the duty of experienced members of the staff of a hospital, a condition which can only be satisfied when the teachers are resident. We have endorsed recently in these columns the widespread view that nothing can be done in the extern department sufficient to teach the student properly, unless it can be combined with training under skilled supervision in lying-in wards. The recommendations of the General Medical Council on the teaching of obstetrics and gynæcology are sound enough, but real effect cannot be given to them until more beds are provided. The point is fully brought out by Sir GEORGE NEWMAN in the Memorandum, which we regard as a highly valuable piece of work. It is a guide to and an explanation of the medical curriculum with a wise and wide commentary upon the regulations; it should be in the hands of all teachers, and students would benefit much by learning from its pages their charted course.

DEATHS UNDER ANÆSTHETICS.

AT a recent discussion on Coroners' Inquests at the Royal Society of Medicine, reported last week at length in our columns, Dr. J. H. CHALDECOTT raised a question of interest to many members of the medical profession. Under the Act of 1887 a coroner must hold an inquest "where the dead body of a person is lying within his jurisdiction and there is reasonable cause to suspect that such person has died either a violent or an unnatural death or has died a sudden death of which the cause is unknown." The law thus leaving them an ample latitude in deciding what is reasonable; coroners, it is stated, have evolved the rule of practice that, where a death occurs under an anæsthetic, an inquest is necessary, although where death occurs from a purely surgical operation, an inquest need not be held. Possibly the distinction has been stated in too general terms, since each case must depend on its own peculiar set of facts, and since serious surgical operations are usually associated with anæsthetics. It is, moreover, scarcely profitable to inquire whether death under the surgeon's knife is less "violent or unnatural" than death under an anæsthetic. If, however, we eliminate all mere generalisations and all mere debating points, we find that anæsthetists are undoubtedly disquieted by a feeling that they are summoned to attend at inquests when other practitioners are not. We need not add that neither an anæsthetist nor, indeed, any medical practitioner ought to be harassed in the execution of his delicate duties by visions of sensational headlines in some catch-penny journal or by anticipations of hostile and perhaps ill-inspired cross-examination. The almost immemorial institution of the coroner's inquest does undoubtedly represent a public safeguard which, however witnesses may be misrepresented and misreported, in the vast majority of cases reassures the relatives of the deceased and builds up public confidence. No tribunal of scientific experts sitting behind closed doors would carry the same weight with the multitude as the open court of the coroner, where gossip and suspicion are vindicated or refuted and human actions and motives are challenged and defended in an atmosphere which would be wholly uncongenial to pure scientific inquiry. The abolition of the coronership would involve a change in the law for which we are convinced the country is entirely unprepared. Dr. A. H. BYGOTT failed to carry the Society of Medical Officers of Health with him in his interesting suggestion to substitute for the coroner the county or borough sanitary authority. Without, however, contemplating any revolutionary alteration in a time-honoured institution which has claimed to trace its origin back as far as King ALFRED, we can still discuss how best this ancient office can fulfil its purpose in the days of King GEORGE. The use of ether and chloroform would have justified a most searching inquiry in the days of the Heptarchy; we are still learning about anæsthetics to-day, but their properties are no longer entirely unfamiliar.

The endeavour to avoid the holding of inquests when a death occurs under an anæsthetic in circumstances which demonstrably negative the idea of either negligence or crime, is not a new one. As was mentioned during the discussion on Dr. CHALDECOTT'S paper, the subject was reported upon several years before the war. In 1908 the Home Secretary appointed a Committee to inquire into the law of coroners and coroners' inquests. The Committee was presided over by Sir MACKENZIE CHALMERS, and included Sir MALCOLM MORRIS and Dr. (now Sir WILLIAM) WILLCOX. In the course of its activities it specially studied the question of deaths resulting from the administration of anæsthetics, and after examining eminent anæsthetists, surgeons, and physicians (the witnesses including Sir VICTOR HORSLEY and Sir LAUDER BRUNTON), it issued in 1910 a separate report on this aspect of the law relating to coroners. In part the Committee's recommendations dealt with the scandal of the then entirely unchecked administration of drugs. In so far as they led to our present legislation as to dangerous drugs, they bore fruit. Otherwise they were abortive, though it is worth while to recall what the other recommendations were. The Chalmers Committee recommended that every death under an anæsthetic should be reported to the coroner, who, after inquiry, should determine whether the holding of an inquiry was desirable or not. In the case of every death under an anæsthetic the medical certificate should state the fact, whether the anæsthetic was the actual cause of death or not. In the case of every death under an anæsthetic in a hospital or other similar public institution, there should be a scientific investigation into the cause of death conducted by the authorities of the institution. Finally, a small standing scientific committee on anæsthetics should be instituted under the authority of the Home Office, to collect and digest information, report on advances made by the discovery of new anæsthetics or by improvements in administration, to direct research, and to make the resultant information available in convenient form and at small cost to the medical profession. It would be a sensible step to reconstitute the Chalmers Committee and to set it the task of developing its former proposals in the light of more recent knowledge and experience. We think that the suggested inquiry in the case of deaths under anæsthetics might be strengthened and made more independent. What seems to be wanted is that, with the consent of all the interests concerned, a panel of leading pathologists should be appointed from which personnel could be drawn to make prompt and full examination of all such cases of death. We should thus obtain not only in general a valuable collection of scientific data, but also in each particular case a certificated and thoroughly authoritative report which would be available for the use of the coroner.

Such a report would in no way be a substitute for a coroner's inquest, but it would often enable the coroner to form an opinion that no element of crime or of criminal negligence was present and that no further investigation was required. Possibly for greater publicity coroners might evolve a procedure in appropriate cases for recording a merely formal verdict on the lines of the scientific report if satisfied thereby. We do not forget that, as Dr. Z. MENNELL pointed out during the discussion, the machinery for a domestic inquiry at the hospital already is in some cases in operation. This machinery should, we consider, be standardised; the investigation should be entrusted to what we have called a panel of pathologists whose names command universal confidence, and it might be arranged that no member of the panel should investigate a case of death occurring at his own hospital. Some useful procedure could, we are convinced, be devised on these lines by men of good will. Fortunately the subject has from the beginning been discussed without the least ill-will or bitterness. There is no room for foolish suggestions that on the one hand anæsthetists have anything to conceal, or that on the other hand coroners multiply inquests for the sake of fees.

The fundamental facts to be faced are two. The first is that the coroner's inquest as an institution is indispensable; the second is that, though it may not suit him to admit it, the coroner's discretion is well-nigh absolute. If he decides not to hold an inquest, powers do exist by which the High Court can order one to be held, but those powers have hardly ever been employed. Conversely, if he decides to hold an inquest, nobody (except in almost unheard-of cases) has power to prevent him. The coroner is master of the situation, and his authority has, if anything, increased latterly since during the war he was in some degree made independent of his jury. In recognition of these two facts we appeal to the coroners as a body—for they are organised as such—to state their views, to tell us how far they accept the conclusions of the Chalmers Committee, how far some such independent and authoritative report as we have spoken of above would be useful to them, how far they would be willing in appropriate cases to rely upon it. The coroner enjoys the full confidence of the country. We do not think he will forfeit it if in cases where no suspicion of crime arises and where the highest professional opinion can find no scintilla of negligence, he accepts the certificate of such a tribunal as we have indicated and dispenses with further inquiry.

THE STORY OF INSULIN.

THE story of insulin is in three chapters. In the year 1869 PAUL LANGERHANS, a pupil of VIRCHOW, described in his thesis for the Berlin M.D. certain cell-groups irregularly scattered in the pancreas, which have since been known as his islands. On the ground of their structure he suggested the probability of a secretory activity. Becoming phthisical, he did not hold for long the chair of pathological anatomy at Freiburg, was unable to follow up his work, and died before the age of 40 in Madeira. In 1893 EDOUARD LAGUESSE, professor of histology at Lille, first gave expression to the opinion that, whereas the digestive secretion of the pancreatic acini is delivered through the ducts, the islands of Langerhans are entrusted with some endocrine function important for carbohydrate metabolism; and he devoted all his working life to the elaboration of this opinion. Twenty-five years from anatomy to physiology, and it has taken another thirty years for therapeutics to exploit the physiological suggestion. The tertiary stage of the story was reached last month, when a hospital patient, admitted on the verge of diabetic coma with extreme air-hunger, a blood-sugar reading of 0·33 per cent. and an alveolar CO_2 reading of 1·1 per cent., was restored to comfort within three hours by the administration of 18 units of insulin extracted from bovine islands of Langerhans. For three weeks after this event the patient has continued to enjoy a diet of 33 g. of protein, 105 g. of fat, and 16 g. of carbohydrate, without glycosuria, on a daily intake of 12 units of insulin. Although there are many points regarding the clinical uses of insulin as yet unexplained, as is made clear in the report to the Medical Research Council which we print on p. 905, the fact is undeniable that an internal secretion has been isolated from the pancreas for practical use which has, for better or for worse, a potent effect on the sugar-content of the blood. If the quantity of the available preparation permitted—which it does not—insulin might be freely used by any diabetic subject, in the picturesque American phrase, for a carbohydrated jag. Even under the carefully controlled conditions of clinical research insulin has resulted in reducing the blood-sugar to a level incompatible with health and within an ace of fatal disaster. Its power for harm is good evidence of its specific efficiency. In one hospital ward a man of 62 who received 10 units of insulin at 1 P.M., followed by his usual dinner at 2.30 P.M., awoke from a snooze at 3.30 P.M. in a feeling of apprehension with staring eyes, thick speech, rapid and feeble pulse, to become unconscious and incontinent at 5 P.M., with a blood-sugar level of 0·09 per cent. Fortunately an intravenous injection of glucose in normal saline solution, followed by glucose and lime-juice by the mouth, restored his working level of glucose in the blood. Evidently insulin should never be given during periods of abstinence from food, as even the accidental omission of a meal expected to follow a dose may lead to harm. Nor is it glucose alone on which the remedy is able to act, for it appears that the accumulation of ketones and other disorderly metabolic products in the blood has been similarly reduced. One of the most important and puzzling facts so far disclosed is the difference in reaction to insulin of the true diabetic coma and the post-operative coma which may arise in diabetics. Clinical investigation shows some primary difference between these and has opened up a field for further investigation. The importance has been demonstrated of getting a diabetic into the best possible condition before attempting operation. No doubt the first thought in the minds of many will be whether even yet anything has been obtained in the way of a cure for diabetes as distinct from a welcome alleviation of one or more of its most troublesome symptoms. The report of the Medical Research Council is quite definite on this point. As yet there is no satisfactory evidence—time has hardly allowed of that—to show that diabetes in its most serious forms can be completely cured by insulin. Under insulin treatment tolerance may and does alter in the direction of improvement; it does not necessarily do so; it has even changed for the worse. In a man, for three years on starvation diet, who had dropped from 14 to 6 st. in weight, a small dosage of insulin made him at first sugar free; when the diet was made more generous the dose of insulin had to be quadrupled in order to keep the urine free from sugar. But whatever the details that remain to be worked out, there is no doubt that the clinician has at long last come into the heritage of LANGERHANS and LAGUESSE.

Annotations.

"Ne quid nimis."

THE BOWMAN LECTURE.

THE Bowman lecture to the Annual Congress of the Ophthalmological Society was delivered by Dr. George de Schweinitz, President of the American Medical Association, who took as his subject Certain Ocular Aspects of Pituitary Body Disorders, mainly Exclusive of the Visual Central and Peripheral Hemiopic Field Defects. After paying a tribute to the memory of Sir William Bowman, the lecturer detailed the results of his researches, in conjunction with Dr. J. Parsons Schaeffer, professor of anatomy in the Jefferson Medical College, Philadelphia, into the anatomy of the pituitary region. In 125 bodies examined it was found that the optic chiasma was in direct relation to the chiasmatic sulcus in only 5 (or 4 per cent.), although this was the position universally assigned to it in anatomical text-books. The relationship of the chiasma to the diaphragma of the hypophysis was also variable; in 96 per cent. the chiasma lay wholly or partly over the diaphragma; rarely it lay completely behind the diaphragma upon the dorsum sellæ. Thus, while in the majority of cases the pressure of a tumour of the pituitary body of sufficient size would tend to fall upon the cross fibres of the chiasma, in those cases where the chiasma lay upon the dorsum sellæ the tumour would tend to separate the optic nerves without in any way stretching the cross fibres of the chiasma. The space between the diaphragma and the hypophysis varied from a potential cleft up to 10 mm. and was dependent upon the degree of development of the brain stem and the level of the tentorium cerebelli. Further, the diaphragma itself showed considerable variations; it might be stout, or frail and fenestrated. Considerable enlargement of the pituitary body might therefore exist before any pressure effect could be exerted upon the chiasma. The vessels of the circle of Willis also were very variable. While the visual arrangement brought the anterior cerebral arteries into relationship with the optic nerves in front of the chiasma, there were cases in which one or both vessels crossed the chiasma or even the optic tracts. Again, the posterior communicating arteries had an occasional and varying relationship to the optic tracts. These variations were sufficiently common to make it possible that vascular constriction might upon occasion play an important part in the production of field defects in cases of pituitary tumour.

As the result of his anatomical observations the lecturer concluded that there was a difficulty in accepting pressure or traction (or both) upon the optic chiasma in cases of pituitary tumour as the sole cause of the field changes. The scotomata which could not be explained upon the pressure or traction theory might, he suggested, be due to a toxic effect; toxins from the tumour might conceivably attack first the more highly specialised macular fibres. The possible anatomical pathway by which the toxins might reach these fibres was discussed at considerable length. In support of this theory Dr. de Schweinitz pointed out that the physiological pituitary enlargement of pregnancy which frequently produced an appreciable degree of hemianopsia never gave rise to a scotoma; in these cases it was supposed that there was no toxin from the pituitary. After discussing the progress of the hemianopsia of pituitary enlargement, the lecturer pointed out how these manifestations might be confused with those due to toxic amblyopia, sphenoiditis, or tabes dorsalis; the differential diagnosis was to be made by careful perimetric observations by modern methods, since each disease had its distinguishing features. Tabes dorsalis was, however, not infrequently associated with pituitary derangement; indeed, it had been suggested that Charcot's arthropathy was a result of hypophyseal change. After double oöphorectomy the lecturer had observed similar visual changes to those of pregnancy, but in this case the changes were permanent. The assertion that in methyl alcohol blindness, which at the present time was attracting considerable attention in America, the primary lesion was in the pituitary body was disproved by the lecturer's experiments upon dogs. The comparative frequency of tuberculous lesions of the pituitary body was also referred to and the possibility of a causal relationship between these and tuberculous affections of the eye. Earlier diagnosis of pituitary tumour might be hoped for when the significance of the "pituitary types" of headache (which often existed for years before any other change was apparent), and of the earliest appearance of amblyopia was more generally recognised. A further aid to diagnosis was the peculiar pallor of the optic disc very characteristic of pituitary disorder. As regards the adjuncts to the surgical treatment of pituitary tumour, radiation by X rays or radium helped to prevent recurrence and was beneficial where the return of visual changes showed that recurrence had taken place. Medicinal treatment by a combination of mercury and pituitary extract was also helpful; mercury seemed to be a powerful adjunct to pituitary extract even when there was no possibility of a syphilitic element in the case. In conclusion, the lecturer pointed out that the X rays might be most fallacious as a means of diagnosis, since very extensive enlargement of the pituitary might exist without any demonstrable change in the sella turcica.

SICKNESS AND OCCUPATION.

SICKNESS has become since the establishment of National Health Insurance a direct economic issue for the community; it has always been an economic issue for the person afflicted. Yet our only measure to-day of the health of the community, or of its constituent parts, continues to be mortality-rates. There is no useful information available concerning sickness-rates distributed by causation and age. Nevertheless the fact attracted attention long ago that influences conducive to morbidity are not identical with those which concern mortality. Thus, Finlaison in 1854 wrote that "locality, although exercising a certain virtue perhaps on the position of an individual attacked with sickness, had not very much to do with the average amount of demand which was likely to be made on the funds of a friendly society. . . . The only practical difference in the distribution of sickness that could be discovered was seen to turn on the amount of physical force called out by the occupation of the contributors." Neison in 1857 and Watson in 1903 followed up the point, and found little positive correlation between morbidity and mortality rates; in fact, the two indices might be negatively correlated. Watson further observed that geographical variations in mortality were greater than occupational variations, but that the reverse held good for sickness.

Clearly, then, if the outgoings for National Health Insurance are to be curtailed by lessening sickness, knowledge is needed of its prevalence and type in occupations. Once this has been acquired, efforts at prevention can be directed with some chance of success. The possibilities are great, as studies which are now being made in the United States indicate. The Public Health Service there, through the coöperation of a number of manufacturing companies and sick-benefit associations of employees, collect information as to invalidity experienced and its diagnosed causes. From time to time summaries are published in the Public Health Reports; they are of great value, even though they possess one marked drawback in not being distributed according to the age of those employed. This matter of age distribution is as important for sickness-rates as for mortality; thus, Finlaison formulated a law that "the sickness undergone during the first 25 years of working life

is the exact moiety of that distributed over the second 25 years." If, however, we assume, although the assumption is no small one, that the age distribution of those employed in the various reporting establishments is roughly the same, then comparisons can be instituted. When this is done such differences are found as 348 cases of sickness per 1000 persons per year in one establishment and only 48 cases in another. These are the extremes stated in the last report issued.[1]

The information shows how sickness varies with season, particularly for all complaints which concern the respiratory organs; here the limits of variation are from 25 cases per 1000 in February to 6·7 cases in July. Bronchial affections stand out easily as first, so long as no epidemic of influenza is prevalent. Diseases of the digestive, circulatory, and nervous systems show much less variation according to season. Certain great causes of mortality, such for instance as tuberculosis, are found to play quite a subsidiary part in causing sickness. The difference found in the frequency of disease at different industrial concerns is striking. The standard attained at one concern should be possible at another; and knowledge that such standards have been attained should be stimulating to a health rivalry. The data as presented certainly indicate that great opportunities exist for reducing disability rates in industry. The present studies cannot be looked upon as more than breaking the ground of a new and untouched science. It is one, however, that for economic reasons we need to cultivate in this country, where, as in America, "before the problem can be intelligently attacked, we must ascertain in as much detail as possible, the causes of the widely different sickness-rates of certain industrial establishments"—and, we would add, of different occupations.

OPERATIONS FOR EXOPHTHALMIC GOITRE.

IT is still frequently urged that the surgical treatment of exophthalmic goitre involves too high a risk to the patient. In the past, when the subjects on this disease were only handed over to the surgeon in the later stages, when the dangers in the use of chloroform were not recognised, and when the gland was more roughly handled and hæmorrhage was allowed to be more free, this may have been true. Little by little the mortality has been reduced, and in this country the published figures of James Berry, A. J. Walton, W. H. C. Romanis, and others have shown that if care be exercised the risk is but little greater than that of major operations. Dr. J. de J. Pemberton has now published the collected figures of the Mayo Institute in the *Journal of Surgery, Gynecology, and Obstetrics*. His paper is of considerable value in that it so clearly shows what are the possible causes of death and what are the best methods of avoiding them. In the year 1922 1093 cases of exophthalmic goitre were operated upon at this Institute. Stress is laid upon the fact that these cases were all true examples of exophthalmic goitre, a very necessary reminder, for the opponents of this form of treatment invariably claim that the good results are due to the inclusion of cases of simple goitre which may be operated upon without risk. For a case to be regarded as a true exophthalmic goitre it is necessary that the clinical findings, the basal metabolic rate, and the pathological investigation are all positive. Including such cases only in this group, Pemberton found that in the 1093 cases there was a mortality of only 1 per cent. It is well realised that in the earlier stages of the disease the risk of operation is much less, and it is probably largely because such cases are now coming to surgical treatment earlier in their course that such admirable results are obtained. Although the total mortality is so low, there are many possible causes of death. Any operation is not only likely to lead to an acute exacerbation of the hyperthyroidism, but if the disease has been of long existence the profound toxæmia may have caused secondary changes in the other viscera such as the heart, liver, and kidneys. The possibility of an acute hyperthyroidism may be diminished by careful preliminary treatment. At the Mayo Clinic it was found that 30–40 per cent. were in sufficiently good condition for early operation, 30 per cent. or so required 10–14 days medical treatment, and the remainder required some preliminary operation, such as ligature of the vessels. This preparatory treatment is of extreme value in lessening the danger when other visceral changes are present.

It has been long noted by many observers that if during the course of the operation the hæmorrhage is severe, the outlook is likely to be serious, but there is still some doubt as to whether these cases stand hæmorrhage badly or whether they bleed more because they are more serious cases and hence stand operation poorly. There can be no question, however, that every precaution must be taken to prevent loss of blood. For this reason every step of the operation must be slowly and methodically carried out, and every vessel should be tied before it is cut. By exercising care in the preliminary treatment, by careful choice of the time of operation and attention to detail in the operative technique, much may be done to lessen the other accidental complications. Special stress is laid upon the importance of operating before advanced changes have occurred in the other viscera, for it is the presence of such changes which so greatly increases the danger, a point to be remembered by those favouring the more conservative methods of treatment. Above all, it is clearly shown that in these cases, as indeed in all branches of surgery, correct diagnosis, skilled preliminary treatment, a careful selection of time of operation, and a knowledge of the after-dangers are as essential as technical skill in operating, points which need to be emphasised in these days when surgery is widely practised outside the teaching schools.

COMPLEMENT FIXATION IN TYPHOID DIAGNOSIS.

IT has been felt for some time in Pretoria that the laboratory diagnosis of typhoid fever by the Widal test was far from satisfactory, and the annual reports of the South African Institute for Medical Research at Johannesburg have commented on the large number of cases of fever which are on clinical grounds clear and unambiguous typhoid in which the agglutination test has proved negative. The question is reviewed at length by Dr. Adrianus Pijper[1] in the light of an abundant and very careful personal experience. Using strains of bacilli from Europe as well as from local sources and the "standard" bacillary suspensions and sera issued from Oxford and Utrecht, he has made a special study of 120 cases which on general clinical grounds were regarded as undoubted typhoid; in 66, attempts at blood culture were made which were successful in 61. Of 199 blood specimens taken altogether, 20 per cent. gave no agglutination at all; of 73 patients who were tested more than once, 10 persistently failed to give any positive result. Taking a limit of agglutination at 1 in 40 as a "positive Widal," only 62 per cent. of the samples were positive. The readiest explanations which will be given for such results are that the patients had not, in fact, got typhoid fever or that the technique was in error. Dr. Pijper has been unable to find any case of paratyphoid infection in Pretoria and he is alive to the possibility of the presence of Malta fever, which he has on rare occasions identified. Errors of diagnosis can, however, be best disposed of by restricting our consideration to those cases in which verified typhoid bacilli were isolated from the blood. From 61 such cases 117 blood samples were examined, of which 44 gave a "negative Widal." The technique seems to have been thoroughly checked and the obvious possibility that there was

[1] Morbidity Among a Group of Wage-Earners. Public Health Reports, vol. xxxvii., No. 52. December, 1922. Washington Government Printing Office.

[1] South African Medical Record, 1923, vol. xxi., pp. 51 and 74.

something exceptional about the strain of bacillus used for the tests can be completely excluded owing to the great variety of cultures from different sources which Dr. Pijper tried. He also shows that culturally and serologically the infecting bacillus in Pretoria is identical with the European typhoid bacillus. From his results the author draws the natural conclusion that for purposes of rapid helpful diagnosis in the early stages of the disease the Widal test is not quite as good as some people have thought. His contribution is, however, something more than the old plaint that laboratory methods of diagnosis are not infallible, for, having put his penny in the slot with unsatisfactory results, he has devised another machine which works more certainly. Using a simple saline suspension of bacteria as "antigen," he got 96 per cent. positive results by complement fixation in the same series of sera which gave only 62 per cent. "positive Widal" tests; of the 120 patients one alone was never positive and no positive result was obtained in 60 controls. The method is more likely than agglutination to give a positive result in the early stages of the disease and the significance of a negative is so much the greater. In persons who have been inoculated, complement fixation generally soon becomes negative, although agglutination persists, which gives the former method a further point of advantage. It is of a good deal of general interest to note that the two reactions do not run parallel, and while the author has made out a strong case for his conclusion that "Widal's reaction ought to be replaced by specific complement-fixation tests," it is to be hoped that for a time, at any rate, the two methods may be tried together and their differences and similarities more closely studied.

THE MEASUREMENT OF VITAL CAPACITY.

SOMETHING over 70 years ago Dr. John Hutchinson published a little monograph on the spirometer after working for many years on the quantity of gases used in respiration and making thousands of observations. His discovery of the value of spirometry was not a mere fluke, for he was a close student of the coal-mines of his native Northumberland, and it was his knowledge of coal-gases which led him to adapt the principle of the gasometer to measure the respiratory disability. Later, as assistant physician to the Brompton Hospital, he urged the general use of the spirometer for the detection of early or threatened phthisis. Prof. G. Dreyer, of Oxford,[1] recently brought these observations of Hutchinson to the light of day and himself continued the investigation into the normal vital capacity of man, bringing it into relation with the size of the body. Prof. Dreyer correlated vital capacity with other physical measurements, with a view to obtaining a working guide to physical fitness under different conditions and in different classes of individuals. Formulæ were evolved to define the relationships between vital capacity, body surface, body weight, trunk length, and chest circumference. In association with Dr. L. S. T. Burrell,[2] it was demonstrated that in pulmonary tuberculosis there was a definite decrease in vital capacity from the normal for the individual of that occupation and mode of life. Improvement in the clinical condition was found to be accompanied by an increased vital capacity which might be used to measure the benefit received from treatment. Several papers have appeared since, confirming the value of vital capacity estimation in diagnosis, prognosis, and treatment. The mathematics of the subject has now been made the object of an elaborate study by biometricians, one of whom, Miss E. C. C. Allen, died during the course of the work. In *Biometrika* for March Lucy D. Cripps, Major Greenwood, and Ethel M. Newbold give the results of this study of the inter-relations of vital capacity, stature, stem length, and weight, in a sample of healthy male adults. The monograph confines itself to the simple biometric question, with what success can vital capacity be expressed as a function of other bodily measurement such as stature and body weight. The conclusion is drawn that the relation between vital capacity and these other factors is rather better described by multiple linear regression formulæ than by the rational formulæ of Dreyer. The variability of the vital capacity of normal male adults is very great and it remains very great—being reduced by less than 25 per cent. of its initial value—when as many as four independent variables are used for estimation. It does not appear that either biometric or rational formulæ can deduce from anthropometric constants estimates of normal vital capacity within sufficiently narrow limits to possess real prognostic value in individual cases. Hutchinson's method therefore remains as good as or better than its recent modifications.

[1] THE LANCET, 1919, ii., 227.
[2] Ibid., 1920, i., 1212.

FRACTURE-DISLOCATIONS OF THE HIP-JOINT.

IN the *Journal of the American Medical Association* for March 17th Dr. Guy Hinsdale reports a case of a fracture-dislocation of the hip in a woman of 55 years, weighing between 11 and 12 stones, who fell in landing from a motor launch in such a way that the whole force of the fall was brought to bear on the region of the left hip. Attempts at reduction under general anæsthesia failed, though the head of the femur could be manipulated opposite the acetabulum. During these manœuvres crepitus could be distinctly felt. An X ray photograph showed a fracture of the head of the femur, the fragment lying on the lower margin of the acetabulum, there being a posterior dislocation on to the dorsum ilii in addition. The fragment, removed by exposure of the joint, was found to comprise about one-third of the head, including the attachment of the ligamentum teres. The subsequent convalescence was uneventful, and a perfectly useful limb resulted. As Dr. Hinsdale points out, fractures of the femoral head are not common, while fracture-dislocations are very rare. If the anatomy and function of the hip- and shoulder-joints be contrasted, it will be readily understood why this lesion is so rare in the one and so common in the other. A search through the literature of the past ten years reveals only one case of a fracture-dislocation of the hip, described by W. C. Campbell last year in the same journal. Dr. Campbell's case was exactly comparable to the subcoracoid dislocation of the humerus with avulsion of the great tuberosity, in that there was a perineal dislocation of the femur with a fracture of the trochanter. Dr. Hinsdale's case is possibly unique, and points a useful moral of the ever-present necessity of taking an X ray photograph in all cases of suspected fracture. It is conceivable that in this case, if a reduction had been easily effected, a photograph might have been omitted, when a painful joint would have resulted with limitation of movement due to the fracture.

LES PETITS PSYCHOPATHES.

Dr. Petre Trisca has been commissioned by the Roumanian Government to gather information as to the methods of dealing with mental disease now employed in France, and has published in book form[1] a preliminary report on the results of his inquiries. The earlier part is historical. He sketches the appalling condition of the insane before their humane treatment was introduced in France by Pinel, and carries on the narrative by outlining the careers of Pinel, Esquirol, Ferrus, Voisin, and Guislain, indicating the part played by each in reforming the treatment of the insane. For information as to present conditions Dr. Trisca is indebted to the officers of the "Comité d'Hygiène mentale" and the "Ligue de Prophylaxie et d'Hygiène mentales." These organisations, which embody the progressive element in French psychiatry, were founded in 1920 and 1918 respectively, the

[1] La Prophylaxie Mentale. By Dr. Petre Trisca. Paris: A. Maloine et Fils. Pp. 214. Fr.20.

former being a governmental committee with corresponding powers, and the latter a society of private individuals with an extensive membership, exerting its influence chiefly by means of propaganda. At the psychiatric clinics in France treatment is provided for sufferers from minor forms of mental disorder ("les petits psychopathes," as they are called in France; a corresponding English term does not exist, and is much needed), and Dr. Trisca gives an account of the work of corresponding clinics in Switzerland and Germany. Much attention is devoted by him to the social service system of America, whereby the home conditions of the patient are observed and to some extent controlled. He is impressed by the necessity of smoothing the path of the patient discharged as cured from an asylum by educating his relatives to receive him in the right way, by finding him work, and, if necessary, by maintaining his treatment. This work, which is carried out in England by the Mental After-Care Association, depends to a great extent for its success on the re-education of the public in matters of insanity, a wider issue to which less prominence is given in the programmes of these French organisations than it would appear to merit. Another important variety of the work in view is the classification of industrial and other workers according to their mental capacity. Not only can industry benefit by the mental suitability of each employee for the work he is doing, but the employee is spared the danger of ill-health, either physical or mental, due to excessive fatigue produced by work for which his powers are unsuited. The lengths to which this project has been carried in America and Germany are known, and the results of applying the Binet-Simon tests to recruits in the American Army have been the subject of comment in our own press. More adequate provision might well be made in France for the education of the mentally defective. A law enabling local authorities to found schools for this purpose was passed in 1909, but very few such schools have come into existence.

The most pressing need of all is provision for the potential insane, the uncertifiable people of small means suffering from hysteria, phobias, and compulsions, depression, hypochondria, anxiety states, and drug habits. Dr. Trisca describes a number of such cases in an appendix to his book; the melancholy conclusion to be drawn from almost every one is that nothing effective could be done unless the patient could be taken into an institution, whereas very few beds are yet available for illness of this kind. Dr. Trisca has apparently not visited England, nor does he refer to any work in this direction now being done in this country. He has, however, collected sufficient data in France to provide his own Government at Bucharest with work for some time to come, and one can only hope that the political situation there, which hardly seems favourable at the moment for changes of this kind, may improve sufficiently to enable him to use his experience in the achievement of some practical reforms.

A VISION OF PREVENTIVE MEDICINE.

Dr. John Dill Robertson, formerly health commissioner of Chicago, has lately published a paper with the provocative title The Health Officer's Challenge to the General Practitioner.[1] There is a provocative spirit in the body of his paper as well as in its title, and this spirit is intentional for, as Dr. Robertson says, "I hope the message may irritate him (the general practitioner) sufficiently to stimulate him to assume his proper duties—it seems there is not much stimulation without irritation." Two quotations may show what Dr. Robertson means by stimulating by irritation. "I charge the general practitioner with negligence—aye, with criminal negligence of his own families. . . . . I do it in the hope that somehow, some way, he may get the message, and that he may heed it in time to forestall State medicine." Another passage runs: "We find the general practitioner, in many of our cities, obstructing, finding fault, with modern progressive ideas for health conservation; and this is not confined alone to the neighbourhood physician, but to many of our so-called leaders in the medical profession." So much for stimulation by irritation. Having harrowed his soil, Dr. Robertson proceeds to fertilise it with constructive ideas. He points out that in Chicago there are about 600 individuals to each physician. If each physician were to assume responsibility for keeping each of these 600 well by carrying out annual physical examinations, by vaccinating them against small-pox and typhoid fever, by encouraging the use of pasteurised milk, and by keeping children away from open cases of tuberculosis, then ". . . there would be but few sick out of their 600. . . . ." Dr. Robertson's advice is detailed as well as general. To the potential convert to preventive medicine he says: "Go to your office to-morrow morning, take down your record and find how many people there are for whom you are the family physician. Take those that have been to your office during the past year; write them a letter; tell them you would like to have them drop into your office, that you would like to talk to them . . . and sell them the idea of health. . . . Tell them that they should have a thorough physical examination . . . and when you make this examination, make an examination that will impress them, not a careless one, not a stick-out-your-tongue-let-me-feel-your-pulse examination, but an examination that they will talk about . . . an examination from head to foot . . .; and when you get all through with your instructions and with your examination, then you are ready to have them sign up with you for a continual, continuous audit of their physical banking account." Dr. Robertson knows how to temper idealism with lucrative realism, for he adds: "and when you have 600 patients signed up you will be amazed at the fact that your income has doubled and trebled in the course of a year."

[1] Bulletin City of Chicago Municipal Tuberculosis Sanitarium, March, 1923.

IDIOSYNCRASIES OF BLOOD-VESSELS.

THE classic study of the phenomena of the circulation has depended chiefly on the transparency of the tissues in such membranes as the web of the frog's foot, its lungs, mesentery, retro-lingual membrane, and thin muscles, and in more or less transparent tissues in mammals. A method for observing the circulation of the blood in the cutaneous capillaries of man by means of a powerful beam of light falling on the surface of the skin was devised by E. Weiss, and this method has been used successfully in the medical clinic of Tübingen. Ernst Wertheimer of the Physiological Laboratory, University of Halle, has employed a similar method whereby it is possible, by directing the light from a powerful Nernst lamp, to study the intact circulation in the organs of curarised or narcotised frogs.[1]

In the case of living *muscle* in situ, the most convenient muscles were found to be those on the flexor side of the arm or leg. The brilliantly illuminated surface of the muscle or other organ is first irrigated several times with Ringer's fluid at room temperature and then the fluid containing the substance to be investigated is similarly applied to the vascular part of the organ. Minute quantities of lactic or phosphoric acid (1/2000 to 1/10,000) cause the smallest blood-vessels of striped muscle to dilate gradually and accelerate the circulation. Too strong concentrations of these acids at first cause narrowing and often dilatation of the vessels. Other acids, acetic and hydrochloric acids, did not give such definite results. It would seem that metabolites of muscular activity such as lactic and phosphoric acids, influence favourably the circulation in muscle. Na_2CO_3 (1/1000) constricts the vessels, may cause capillaries to disappear, and arrests the circulation. Adrenalin (1/10,000 to 1/40,000) has a definite

[1] Pflüger's Arch. f. d. gesam. Physiol., vol. cxcvi., 1922.

slow vaso-constrictor effect, the capillaries become narrower, and the circulation at length ceases; but the action of adrenalin on muscle vessels is by no means so prompt as on the intestinal vessels. Choline and pilocarpine showed no action. The moderately inflated *lung* is admirably adapted for the study of drugs on its blood-vessels. In contrast to the blood-vessels of most other organs, its vessels are largely indifferent to drugs that affect vascular tissues of other organs. Adrenalin in the above-mentioned concentration is without effect, but a supersaturated solution of CO_2 accelerates the circulation in the lungs, while weak alkaline solutions produce the opposite effect. Choline, which is formed in the intestinal canal, has a specific action on the circulation in the *intestinal wall*, which it dilates and accelerates. Pilocarpine has a similaraction. Atropine (1/1000) does not appear to act on the normal intestinal circulation, but when the blood-vessels are dilated by choline atropine causes constriction. Ca and Mg accelerate the flow, while K narrows the vessels; but in any case a certain relation between the potassium and calcium salts is necessary, for if the former are in excess, the choline action does not occur, if the latter is in excess, the result is the reverse. The choline action is also reversed by the previous application of preparations of thyroid and pituitary gland. Adrenalin acts definitely on the circulation of the intestine, liver, and spleen, it constricts the blood-vessels of the kidney and dilates those of the suprarenal body.

The author concludes that each organ is provided with blood-vessels peculiar to itself, and that the blood-vessels of one area react differently from those of another vascular area. Substances resulting from the metabolism of different organs, and in part excreted by them, are of great importance for the condition of the blood-vessels of the corresponding organs and for the increased circulation of the blood during increased functional activity—e.g., lactic and phosphoric acid in muscle, choline in the intestine, adrenalin in the suprarenal, and CO_2 in the lungs.

THE PROGNOSIS AND TREATMENT OF SPONTANEOUS PNEUMOTHORAX.

IN the *Schweizerische medizinsche Wochenschrift* for March 22nd there is a paper by the late Dr. Lucius Spengler, who had a long and varied experience of spontaneous pneumothorax in the subjects of pulmonary tuberculosis. It is curious how remarkably the results achieved by various physicians differ. Some regard a spontaneous pneumothorax, occurring in the course of pulmonary tuberculosis, as an almost invariably fatal complication. Drasche's statistics would seem to justify this pessimism, for there was only one recovery among 189 cases. West's results were only a little better; there were 11 recoveries among 167 cases. Dr. Spengler, in the course of 30 years, treated 42 cases of spontaneous tuberculous pneumothorax, and in as many as 16, or 38 per cent., the patients recovered from the pneumothorax. In seven of these cases the patients also recovered completely from the pulmonary tuberculosis, this recovery being maintained for several years. Only in four cases did the patients die within a week of the accident, but there were as many as 15 who died between the second week and the second year. In almost every case the pulmonary disease was progressive at the time of the accident, and it is noteworthy that the average age of the 16 patients who recovered from the pneumothorax was only 24 years. In 11 of these 16 cases the disease was unilateral, and in none of them did a purulent "malignant" pleural effusion occur. These facts explain in part the comparatively high proportion of successes achieved by Dr. Spengler. But they do not explain them entirely, and it is probable that many of the patients owed their lives to the patient skill with which Dr. Spengler attended them. One of his guiding principles was to encourage every condition likely to favour permanent closure of the rift in the lung and visceral pleura. Realising that a large effusion may provide much fibrin wherewith to plaster the pleura and close this rift, he was careful not to aspirate wholesale, and when artificial pneumothorax treatment was introduced he adopted the principle of partial gas replacement. He found that when the pneumothorax remained dry, the rift in the lung was apt to keep open, and to close it he advocated the introduction of some pleural irritant with a view to provoking a small effusion which would plaster the lung with fibrin. In one such case he introduced 30 c.cm. of a 30 per cent. solution of grape-sugar in normal saline, and the small effusion which formed proved most beneficial. Another reason for Dr. Spengler's high proportion of successes may have been his inclusion of cases which, in less skilled hands, might have escaped diagnosis. Recent work in America has shown that many cases of spontaneous pneumothorax give rise to such slight symptoms that, but for the help of the X rays and careful clinical examination, they would escape notice. Indeed, it is probable that most cases of spontaneous pneumothorax in consumptives are not diagnosed as such.

THE CANCER PROBLEM.

WE have just received the annual report of the Cancer Commission of Harvard University for the year 1921–22. This volume of 70 pages contains little that is of interest to the clinician and has no reference to any work having been carried out dealing with the central problems of cancer. At one time the Collis P. Huntingdon Fund, which is under the control of the Cancer Commission of Harvard University, was one of the centres of the scientific investigation of cancer by experimental methods. Some years ago the Committee decided to drop this line of cancer research and to devote all its resources to the clinical treatment of cancer and to the development of radiotherapy. It is a matter of regret that the oldest university in the States should in this field have abandoned its high academic traditions as a consequence of the loss of faith of its Cancer Committee in scientific investigation. To many it will seem that courage has failed the workers at a most unfortunate moment. We had occasion recently in reviewing the first volume of the *Proceedings* of the Leeuwenhoek Vereeniging to draw attention to the important advances which have been made during the last few years in our knowledge of cancer. The work of Fibiger in Copenhagen and of Yamagiwa and Ishikawa in Japan has opened up a new line of research which has been and is being actively pursued all over the world in such leading cancer research laboratories as the Crocker Cancer Research Fund in New York, the Imperial Cancer Research Fund in London, the Cancer Hospital in London, and the Antoni van Leeuwenhoek Huis in Amsterdam. We hope that the great University of Harvard will take heart again.

THE third annual report, issued to-day,[1] of the Industrial Fatigue Research Board records an important stage in the history of the work. Up to the present the staff of investigators have been feeling their way through the many opportunities existing in the industrial field, but the time is now arriving when as the combined result of their investigations principles of general application begin to appear. Four independent inquiries have shown the advantage alike to manufacture and to personnel of avoiding excessive moisture in cotton-weaving sheds; two recent reports confirm the increased productive efficiency as a result of better lighting in weaving; from different sources the curve of output and the curve of accident have been shown to correspond fairly closely. The Board proposes to continue the study of fatigue and efficiency on general lines, regarding no study as complete until definite numerical values can be attached to it. Satisfaction is expressed at the growing interest shown by manufacturers in the work of the Board and at the growing usefulness of the recently formed National Institute of Industrial Psychology.

[1] Medical Research Council. 2s.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XVIII.
HEART FAILURE: PREVENTIVE TREATMENT.[1]

Prophylaxis.—The two great single causes of heart disease are acute rheumatism and syphilis. The removal of enlarged tonsils in children lessens the risk of rheumatic infection. Salicylate should not only be given in adequate doses during the acute stage of rheumatism, but continued in smaller doses—e.g., gr. x., t.d.s.—for many weeks without intermission as a routine in a restful convalescence; iron and cod-liver oil should be the accessories. Similarly, thorough treatment of syphilis is likely to reduce the incidence of syphilitic aortitis which so often involves heart as well as aorta.

General Management.

When a patient is known to have heart disease, and failure is not yet in evidence, there are certain measures calculated to postpone or even prevent failure. It may be permissible to reiterate them, for some are forgotten in the hurry of practice. It is better that the underclothing should be thick than that the patient should carry about the load of a heavy overcoat, and for this a light fleecy one may be substituted. Thick socks or stockings are advisable and boots which are waterproof and big enough. As sleep is so important, in winter the air of the bedroom should be warmed as well as the bed itself, for it is often the change to the cold air of the bedroom which starts the nightly cough. Where failure is hardly avoided the bedroom may with advantage be on the ground floor. In the daily life of these potential invalids there is greater need of physical rest. An hour earlier to bed each night and a half day in bed on Sundays, or a whole day in bed once a week is a good rule. They should have a first call on the couch and choose it rather than a chair, for instance when they read in the evening. If it can possibly be arranged, they should remain indoors on wild and damp days so as to lessen the risks of catarrhal infection. If in spite of all precautions acute bronchitis, influenza, tonsillitis, or one of the infections of unknown origin reaches the patient, he should be longer in bed and have a longer convalescence than his robuster fellows. A source of infection, such as enlarged tonsils or pyorrhœa, must be treated at any age not only because it may dispose to earlier failure, but also to eliminate sources of secondary infection which may increase the risk of infective endocarditis.

Diet.—There is no reason why the diet in chronic heart disease without failure should be much modified. A dry mixed diet will meet the ordinary needs in limiting the fluid intake, and in avoiding the flatulence which is the chief dyspeptic difficulty of these patients. They are tempted to take too much tea, and this should be restricted in amount, though it need not be inferior in strength any more than coffee, remembering the diuretic properties of these beverages. Many find that they are much better if they take meals of almost similar bulk during the day—breakfast, mid-day dinner, and tea approximating in amount. Hot milk or a hot milk preparation is very suitable alone as supper. If alcohol is taken it should be as light wine with meals, or weak spirits at night. It is unnecessary in most cases to interfere with moderate smoking habits; if dyspnœa is at all pronounced, this in itself will restrict the desire for it, but if pain of any severity or significance is present smoking almost always accentuates it and abstinence is well worth while.

[1] An article on the Therapeutics of Heart Failure will appear in the next issue of THE LANCET.

Exertion.—It is seldom such a difficulty as might be anticipated to decide when exertion is permissible in chronic heart disease. The cardinal symptom as a guide is breathlessness on exertion. This is Nature's brake where the heart is limited in power, and if the patient will learn to avoid exertion which evokes distress such exertion is not doing harm. We are not here dealing with acute infection of the heart where movement is limited on a principle (rest for repair) without regard to symptoms. Exercise within the limits imposed by the symptoms does no harm, but rather good in the patient with established heart disease free from complications. It improves the digestion, the muscular action aids the circulation, and the natural fatigue promotes sleep. Moreover, there is no better way to reassure the subject of cardiac disease than to permit reasonable exertion. He should make his own pace, noticing his greatest limitation at hills and in a high wind.

Employment.—A man so situated that he must work should strive to obtain a modified form of employment which entails less exertion than before, and if it is also one where regular attendance is not imperative it becomes almost ideal. Here is one of the advantages of home employment or trade where time off can be more easily obtained if premonitory symptoms of failure are noticed. Clerical or pay-box work in a small business, light bench work as a carpenter, sitting occupation in the jewellery and tobacco trades are some suitable forms of employment. One who has worked in a labour yard may become a checker or time-keeper. Tailoring is often suitable work, but heavy irons may have to be used. Basket-making is taught to some pensioners with heart disease. The employer should know that the men permitted to undertake such work are not likely to drop dead. Contrary to the lay view, patients with chronic heart disease usually take a long time to die. If we exclude acute infections of the heart, angina pectoris, syphilitic aortic incompetence or aneurysm, and arteriosclerosis with excessive pressure, we are left with the average case of rheumatic heart disease where the risk of sudden or unexpected death is remote. Incidentally, if this be true, it should be our pleasure to acquaint the patient with the fact and to act upon it.

The Prevention of Heart Failure in Acute Infections.

In many infections, as pneumonia, specific therapy is wanting and treatment centres round the heart and means for its support. By good nursing exertion is reduced to a minimum. Sleep is obtained and cough is relieved by morphine at night in the early stages. Later, if cyanosis appears, oxygen should be administered through the nose by a soft rubber catheter connected with the rubber tube instead of the wasteful funnel. If with cyanosis the veins are distended and circulatory embarrassment is obvious, a venesection to 10–20 ounces is indicated. Little reliance can be placed upon such popular drugs as caffeine, strychnine, and camphor if the heart is failing; pharmacological and clinical evidence of their efficacy is meagre. The same is true of brandy, though its narcotic or sedative action may be useful. There is more justification for the use of digitalis, for this drug can at least affect the heart, but there is no agreement as to whether it can or cannot ward off failure if given throughout an infection.

Postponement of Failure in Syphilitic Heart Disease.

The distinction between rheumatic and syphilitic aortic incompetence is more important than the distinction between aortic incompetence and mitral stenosis. A syphilitic history or a positive Wassermann reaction, in the absence of a rheumatic history, gives the key to a rational treatment for preventing heart failure. It is a tertiary lesion in a dangerous place. Hutchinson's pill (hyd. c. creta, pulv. ipecac. co., aa gr. i.) t.d.s., and a bitter mixture containing potassium iodide gr. x., also t.d.s., is convenient for

prolonged administration. In cases not progressive nor too advanced, after a month of such treatment the use of salvarsan should be considered. If decided upon, novarsenobillon intravenously, 0·3, 0·45, 0·6, 0·6, 0·6, 0·6 g. in successive weekly doses is suitable. By anti-syphilitic treatment we may postpone or prevent not only heart failure in its ordinary form, but the special dangers of angina pectoris and aneurysm.

Prevention of Heart Failure when Auricular Fibrillation is Established.

In every practice there will be some among the known subjects of heart disease, especially mitral stenosis, in whom the heart has become persistently irregular and rapid. Where the onset of fibrillation is recent, and in selected cases, quinidine may succeed in restoring the original regular rhythm, and to that extent may postpone failure. Where fibrillation occurs in paroxysms quinidine may also be useful, for it inhibits these attacks which are so often preliminary to established fibrillation.[1] In most cases, however, we have to accept the new phase in the life-history of the cardiac patient—he is the subject of auricular fibrillation, the pulse is permanently and completely irregular. Increased breathlessness on exertion, if nothing worse, tells of the nearness of heart failure. Rest makes surprisingly little difference either to the symptoms or to the character or rate of the pulse. Rest indeed does not meet the case, but digitalis usually meets it to such an extent as to render prolonged rest in bed superfluous. If any drug is indicated in any condition, digitalis is indicated here, and these patients have a right to a fair trial of it. In the average case it will be found that 10 minims of tincture of digitalis, B.P., three times a day, will reduce the breathlessness on exertion to a noticeable degree and restrain the pulse-rate to 60–80 a minute. To continue the right dose of digitalis indefinitely is the surest way to postpone failure indefinitely.

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Special Articles.

THE WORK OF THE PENSIONS MEDICAL SERVICE.

I. ENTITLEMENT TO PENSION.

OF all the issues left by the Great War none, perhaps, affects the public more nearly than that of pensions. The granting or withholding of pensions, their amount, the composition and conduct of medical boards, the payments of treatment and other supplementary allowances, the supply of artificial limbs, the care of insane ex-Service men—each in turn has agitated and still perturbs the public mind. The reports of our Parliamentary correspondent, published week by week in THE LANCET, show that the department responsible for the administration of war pensions discharges its duties under a constant running fire of criticism, often well-informed and helpful, but at times somewhat severe. To the medical profession, however, all these are matters of particular interest, and, if we were ourselves to join the critics it would be to say, first, that the extent to which practically every decision and act of the Pensions Department turns upon medical opinion has never been adequately and plainly set forth; and, secondly, that the general, and even the medical public, have never been fully informed of the great mass of medical work accomplished under the direction of the Ministry.

[1] THE LANCET, 1922, ii., 1267.

The Principle of Attributability.

Under the Royal Warrants the Minister of Pensions has power to grant pensions to officers and men in respect of injury or disease certified as attributable to or aggravated by military service during the war. So far as disablement pensions are concerned it is to be observed that the disability must be attributable to or aggravated *by* and not merely *on* service, and we believe that considerable misapprehension has arisen through failure to appreciate this distinction. The decision as to whether military service has, in fact, so caused or aggravated the disability is fundamental, for on this decision hangs not merely the right to pension, but to treatment at the cost of the State, to treatment allowances when in consequence of undergoing treatment the pensioner is prevented from following his remunerative employment; to other supplementary allowances for which the man may be eligible; to treatment combined with vocational training in a new occupation when this is recommended; and, it may be, to pension and allowances for the widows and dependents. This decision is based on medical opinion, the opinion of a medical board, or boards. Following this occasion almost every action taken, the amount awarded, treatment and allowances, vocational training with treatment, and so on, turns on a medical point.

As in the great mass of cases the question of attributability or aggravation—or entitlement, as it has come to be named—has long since been settled on the basis of reports of the proceedings of medical boards of the Navy, Army, Air Force, Ministry of National Service and Ministry of Pensions, it may seem that now, with certain exceptions, this question is mainly of retrospective interest. Among these exceptions the principal are claims arising under Article 9 of the Royal Warrant where disablement reveals itself after discharge, and claims to widows' pension under Article 11. Surprising though it may be, claims on account of disablement due to military service are still, 18 months after the official termination of the war and more than four years after the actual cessation of hostilities, being preferred in large numbers for the first time. At present, excluding widows or dependents' cases, some 650 claims are made weekly, and fresh awards given at the average rate of 170 a week. Obviously, the greater the length of time which separates the claim and the military service of the claimant the greater the time and care required to come to a just decision. The whole of the official documents bearing on the claimant's medical history; extracts from hospitals in which he has been treated; the certificates of his pre-enlistment and post-discharge medical attendants, as well as those of his employers before and after the war, together with any other evidence the claimant may be able to produce, have to be anxiously considered in the light of the actual examination of the man, lest, on the one hand, injustice may be done by refusing the man his due, or, on the other hand, an injury may be done to all others properly pensioned, by conceding that to which the claimant is not entitled. In some cases the evidence of commanding officers and others, scattered in distant parts of the Empire, must be awaited, and bearing these facts in mind, the average time now taken in settling an Article 9 claim, between five and six weeks, is not unreasonable.

How the Principle is Determined.

At this point it may be well to refer to the machinery set up by the Ministry of Pensions in connexion with the determination of entitlement in its medical aspects. At the very beginning of this Ministry it became necessary to establish at headquarters, as part of the pensions medical services, a body of medical men, styled medical assessors, charged with the duty of examining the reports furnished by medical boards; of referring these reports back, where necessary, for further information, and generally of seeing that the medical grounds for decision were in accordance with the terms of the Royal Warrants.

In time, as a result of the wide experience gained, general directions for the guidance of medical boards were drawn up and issued to medical boards explaining the various Warrant provisions, at the same time emphasising the fact that the Ministry desired the unbiased, frank, and unfettered opinion of the examining doctors. These "general directions" have been considered section by section, have been amplified and amended by a Medical Disability Committee, specially appointed by the Minister, composed, as to the main committee, of the Presidents of the Royal College of Physicians and the Royal College of Surgeons, with eminent members of both Colleges, together with one or two representatives of the Ministry; and as to its numerous subcommittees, or main committee in special session, of consultants and specialists of the highest rank from all parts of the country. The Ministry, in fact, have wisely taken care to incorporate in these "directions" the authentic opinion of the medical profession of this country, as represented by its own acknowledged leaders. It seems equally certain that the views of the profession at large are reflected in the work of the medical boards of the Ministry. It is true that the numbers boarded weekly are only about one-half what they were two years ago, and that, in consequence, a smaller number of the general and specialist members of the profession are now occupied in this work. Thus, we understand that the number of officers and men boarded weekly at present is about 16,000 as compared with more than twice that number two years ago.

Medical Boards and their Staffs.

The numbers of medical men to-day employed by the Ministry of Pensions, either as whole-time salaried officials or employed part time on a sessional basis, may be taken as indicating the extent to which the medical profession at large share in the activities of the Ministry. We are informed that, not counting the 289 medical officials of the Ministry at headquarters and in the regions and the 226 whole-time salaried medical officers of Ministry hospitals and clinics, and disregarding 1600 medical referees, there are to-day over 4400 medical men serving on the medical boards and clinics of the Ministry, of whom 1269 are approved specialists—that is, that out of a total number of 6515 medical men engaged in the work of the Ministry, 515 are whole-time officers, and of these 289 are medical officials in the accepted usage of the term. It may be urged, however, that notwithstanding their sheer weight of numbers the decisions of medical boards and medical officers at hospitals or clinics may be over-ridden by the comparatively small number of salaried medical officers. Here we are advised that a certain distinction has been necessarily drawn between an opinion on entitlement and one on assessment of degree of disablement, questions of a non-medical order, legal interpretations of the Warrants and ethical considerations as to misconduct and negligence entering into the former, whereas assessment of the degree of disablement is officially regarded as entirely for medical determination by the board examining the man. Certainly, however, entitlement to pension under the Warrant is mainly a medical question, and, therefore, it is reassuring to learn that, by Ministerial instruction, when a difference of medical opinion exists on a question of attributability or aggravation as between a board and a medical assessor or other official of the Ministry, the case must be referred to a medical board of reference for a decisive opinion on the medical aspect of the case.

Re-Survey and Appeal.

To the uninitiated the medical machine of boarding must seem somewhat elaborate. In addition to the ordinary medical boards examining men for the purposes of first awards and subsequent re-survey, there are medical appeal boards dealing with appeals against the amount awarded; neurological and other specialist boards; the medical boards of reference already mentioned; and special boards for the examination of men to whom the granting of final awards is under consideration. Each of the last four named boards contains an approved specialist as member to whose opinion the greatest weight is attached, and who, as a member of the outside medical public, cannot be accused of State bias. Almost invariably two, and frequently the whole three, members of these boards are medical men in general and specialist practice. As our readers are aware, the membership of the ordinary re-survey boards, which assess the degree of disablement, was reduced from three to two a year ago, and again almost invariably these boards are composed of members engaged in outside practice. It seems evident, therefore, that whatever charges may be brought against decisions on entitlement or assessment of disablement—and it is not to be denied that among the million and a half dealt with mistakes must have been made—the medical profession as a whole, both as regards the boards and the directions issued for their guidance, is directly concerned. The work—and we are here only considering entitlement and assessment—is responsible and often intricate; calls for exact clinical knowledge, judgment, wide knowledge of both medicine and men, and the constant exercise of tact and good-will to those who have served and suffered in the late war. There is every reason to believe that these requirements have been abundantly met. The medical boards have been well manned both as regards their ordinary and specialist members, the latter comprising consultants of high standing, whilst the consultant advisers of the Ministry at headquarters are all men of wide reputation and authority.

Quite naturally, considering the large numbers of men accepted for some form of service though already disabled to some extent on entry, doubts as to entitlement to State compensation must often have assailed the members of medical boards, but that, in accordance with Ministerial policy, the claimants have been generously accorded the benefit of doubt, and that each case is considered on its merits seems to be shown by the fact that whilst 1,500,000 disablement pensions have been awarded, only 300,000 claims have been rejected. There can, in fact, be no question that the provisions of the Royal Warrants on these medical aspects have been and are being fairly, indeed generously, interpreted and administered. This was, it will be remembered, the finding of an important departmental committee of inquiry two years ago.

CONTROL OF VENEREAL DISEASE.

REPRESSIVE MEASURES IN AMERICA.

THE forty-fifth annual report of the Department of Health of the State of New Jersey, 1922, a well-written document, which reflects much credit on Dr. J. C. Price, the director of the department, and his collaborators, will specially interest those who are working to control venereal disease. The estimated population of the State of New Jersey is 3¼ millions, and from statistical tables in the report it appears that in the year 1921 compulsory enforcement of notification resulted in the reporting of 96 cases of chancroid, of 2738 cases of gonorrhœa, and of 3155 cases of syphilis. The number of cases for each of these diseases are not given separately for the two sexes; but of all three together 4541 male and 1448 female cases were notified. The death returns for these diseases are notoriously untrustworthy; but the statistical statement that the proportion between deaths and notified cases of venereal disease was 3 per cent. for the male and about 4·8 per cent. for the female cases appears to show that female are reported less completely than male cases. Whether so or not, it is highly improbable that the 5989 cases, which are less than 2 per 1000 of the population of the State, represent more than a fraction of the cases of venereal disease coming under the care of physicians in the State. In England and Wales the total number of new cases of venereal diseases coming under treat-

ment at the subsidised clinics in 1921 numbered about 1·6 per 1000 of population; a striking illustration of the virtue attaching to provision of facilities for treatment of patients as compared with compulsory notification with but a scanty provision of such facilities.

Demonstration Clinics in New Jersey.

The anti-venereal work in New Jersey has included the holding of demonstration clinics on the diagnosis and treatment of syphilis in ten cities in the State, which have been attended by over one-fifth of the medical practitioners in the State. Educational work has been done with three objects in view: to reduce the number of foci of infection, to reduce the opportunities for extra-marital sexual contacts, and to prevent sexual promiscuity. In preventing opportunities for promiscuous sexual intercourse stress has been laid on the education of special groups, with a view, for instance, to secure supervision of the juvenile delinquent who is likely to develop, if unaided, into the sexual prostitute, and with a view to repression of clandestine prostitution, the regulation of amusement places, &c. The prevention of sexual contacts outside the marriage state, it is appreciated, "resolves itself into the creating and crystallising of public opinion for the single standard of morality," and with this object in view carefully formulated educational work has been undertaken among key groups in every stratum of society. It is further recognised that the statement of biological, psychological, and sociological facts alone has relatively small influence in the building of character for individual chastity, this depending ultimately solely on a true education which includes character building.

The "Medical Case Worker."

Attention may be drawn to the efforts being made in New Jersey to fulfil the requirement of the State law to "investigate all cases that are under the care of reputable physicians and to ascertain so far as is possible all sources of infection and exposures to the same." We wish further particulars had been given as to the practicability and extent of this work; so far it is evidently experimental in character. In one city a "medical case worker" has been appointed on the staff of the local board of health, and another for a group of municipalities. The medical case worker is expected to investigate the sources of infection of all known cases, both those treated in public clinics and those reported as delinquent by practising physicians; and is also expected to determine other foci of infection by the study of death and stillbirth records. There can be no doubt as to the value of this item. It is a class of work which, if it cannot be described as exactly neglected, is almost completely unexplored in the work of most sanitary authorities in England. Notification of stillbirths are received, and these only exceptionally are made the subject of inquiry, directed to ascertaining whether syphilis is concerned in the ante-natal death. It would be a valuable return if it could be ascertained by inquiry, for instance, in all the county boroughs of England and Wales, how many stillbirths were found in the year 1922 to be caused by syphilis. The inquiry would reveal how much anti-venereal work is waiting to be done; the inquiries in connexion with which would, it may be added, involve fewer delicate difficulties, than if cases of recent venereal disease in adults were to be the subject of domiciliary investigation.

Similar remarks apply to the large number of cases of interstitial keratitis and of other diseases indicating congenital syphilis which come under treatment in child-welfare centres, in the out-patient departments in children's and other hospitals, in work-house infirmaries, &c., in all of which most valuable familial anti-venereal work might be done with little risk of exciting friction or opposition, given tactful as well as zealous and intelligent workers.

"Suspected Contacts" in Illinois.

The new regulations promulgated by Dr. Isaac D. Rawlings, State Director of Public Health, are distinctly severe, and are supported by a penalty of six months' imprisonment. "Any person known to be a common prostitute . . . or any man consorting with a common prostitute . . . or inmate of a house of ill-fame shall be deemed to be a suspected case of venereal or an infective carrier." If a person is known to have exposed himself or herself to infection, but is not found on examination to have venereal disease, he or she may be held by the health authorities as a "suspected contact" for the period of incubation of the suspected disease. If a suspected person refuses examination the refusal is considered evidence of infection, and the suspected person may be quarantined and his or her premises placarded exactly as though infection had been found. Doctors who have been in the habit of issuing certificates of freedom from venereal disease will continue this practice only at the risk of revocation of their licences. Druggists who sell preparations for the treatment of venereal disease must do so upon a doctor's prescription, or if no prescription is offered they must report the name and address of the purchaser to the health authorities. There is no doubt that a serious effort is on foot to deal with vice in the State, whose chief city has of late earned a distinctly unsavoury reputation in this respect. Whether some of these regulations by their very stringency may not defeat the object in view remains to be seen.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENT.)

THE KING INSTITUTE OF PREVENTIVE MEDICINE

THE report of the King Institute, Guindy, for the period from Jan. 1st, 1921, to March 31st, 1922, has just been issued, together with the Government review of its contents. The Director, Major J. Cunningham, I.M.S., in his introduction, describes the five main aspects of the Institute as follows: (1) A vaccine manufacturing depôt for the Madras Presidency; (2) a bacteriological laboratory for the manufacture of bacterial vaccines; (3) a laboratory for examination of clinical material for the Madras hospitals and the medical profession of the Presidency; (4) the Presidency public health laboratory; and (5) a research laboratory for the investigation of medical and public health problems. The Director points out that the various functions of the Institute are undertaken in most other provinces by two or more separate institutions. The Madras policy of concentration presents many advantages, especially as regards economy, whilst full opportunity is retained for expansion in every direction.

Vaccine Manufacture and Supply.

The decrease of 224,075 doses of vaccine lymph is undoubtedly due to the cessation of routine vaccination during the hot months, sanctioned by Government and brought into effect for the first time during the year under review. It is satisfactory to note that "a large proportion of those who were not vaccinated in the hot months presented themselves for vaccination during the cooler months." Major Cunningham estimates that cessation during the hot weather resulted in a net decrease of a little over 2000 vaccinations, but the expense and trouble of carrying out over 42,000 unsuccessful vaccinations have been saved. The stoppage has also been amply justified by the rise in the success rate from 66 to 75 per cent. The results obtained with 40·7 per cent. of the lymph issued are not known, and only a small proportion of this large number is due to revaccinations. It is not clear why all authorities and local bodies which receive supplies of lymph from the King Institute should not be compelled to furnish returns, so that the behaviour of the lymph can be gauged under all conditions. The merits of glycerine and lanoline lymph have been dealt with in a separate report on which the Government have already passed

orders.[1] By arrangement with the Director of Public Health and the President of the District Board, Chingleput, the Saidapet Range has been utilised by the King Institute for testing batches of lymph; this step has been of the greatest service, and there seems no reason why it should not be made permanent.

Monthly Success Rates.

The inferences drawn by the Director from the monthly success rates are: (1) That a stoppage of vaccination for two months is insufficient and that better results could be obtained by a four months' cessation throughout the Presidency, and (2) that the standard for successful vaccination adopted by the King Institute is higher than that generally accepted by the vaccination staff. Major Cunningham again emphasises the importance of taking into account the insertion success rate, and of the verification, as far as possible, of vaccination operations in the vesicle stage. Many cases are only verified after scar formation, and very small and doubtful scars are too often taken as evidence of success; these cases are in reality imperfectly protected or not protected at all, and when small-pox breaks out the disease may show a high incidence amongst the vaccinated. This fact disturbs public confidence in a well-proved measure of protection.

Bacterial Vaccines: Public Health.

The increasing demand for the anti-typhoid and anti-cholera vaccines is significant. Owing to the decline in the incidence of influenza, the number of doses of this vaccine dropped very considerably. In dealing with the public health section of the Institute, the Director draws attention to the ridiculously small number—61—of specimens sent for examination during the year. No standard of purity has yet been laid down for the common articles of diet in the Madras Presidency, although a "Food Adulteration Act" is on the Statute book, and it is understood that proposals for the appointment of a public analyst and the equipment of a laboratory are under the consideration of Government. Until these are provided the Food Adulteration Act will remain a dead letter.

Assistance to Other Departments: Education and Research.

A new feature of the report is a description of assistance rendered by the Institute to other departments. In this connexion Madras has again given the lead to other parts of India by the employment of bacteriological units sent out from the Institute for the investigation of special problems. The present report mentions the work done by such a unit in the Moplah Jail at Bellary, work which in a very short time effected a remarkable improvement in the health of the prisoners. Since then several other units have been sent out to different parts of the Presidency for the investigation of various epidemic outbreaks, and these have done extraordinarily good work. It is hoped that Government will encourage the system. The educational and research activities of the Institute are dealt with in the last pages of the report, and in conclusion the Director estimates the profits of the Institute as a whole at Rs.1,10,280, this estimate being based on the market value of the lymph, vaccines, and laboratory examinations made by the Institute staff.

The Prince of Wales's Hospital for Children, Madras.

It was decided that the great bulk of the money collected to celebrate the Prince of Wales's visit to Madras should be devoted to the erection of a children's hospital, with which Madras has been so far totally unprovided. A considerable sum of money was also collected after the armistice for the erection of a war memorial in the shape of a "Hall of Victory," but various difficulties have arisen to delay its completion. A medical school for women is to be opened in Madras, and the present Victoria Caste and Gosha Hospital is to be replaced by a new hospital built alongside the new medical school. The Government have taken the opportunity to amalgamate the four buildings into one large group, to be built on vacant ground beside the Queen Mary's College for Women. The foundation-stones were laid on March 26th.

Madras, March 27th.

[1] See THE LANCET, March 31st, p. 668.

THE THIRTY-FIFTH CONGRESS OF INTERNAL MEDICINE AT VIENNA.

(*Concluded from p. 868.*)

THE third day was given up to a discussion on

Arterial Hypertension.

Prof. A. Durig (Vienna) and Prof. F. Volhard (Halle) introduced this subject. Prof. Durig dealt with the physiological aspect of the problem, pointing out that the pioneer researches were made in Vienna 80 years ago, when Ludwig, Basch, and Gärtner attacked the problem. The normal level of arterial tension was, he said, very variable, depending upon numerous physiological conditions such as muscular exertion, age, time of day, psychic state, and so on. It ranged between 90 mm. during sleep and 180 mm. Hg in the day; mere measurement of the blood pressure gave only values for comparison, not a definite test of hypertension. Hypertension was present if a disproportion existed between the quantity of blood expelled by the heart and the quantity of blood accommodated in the blood-vessels. Great importance was attached to the arterioles and capillaries in that respect, especially to changes in them, such as loss of elasticity or narrowing of lumen, either by thrombosis or arterio-sclerosis, when part of the cardiac force was spent without result. The significance of hypertension is not yet fixed; it may prove the existence of a fault in the heart or in the circulatory system. Exact analysis is needed. Hereditary influence and predisposition have been observed in 82 families with purely functional hypertension.

Prof. Volhard dealt with hypertension in connexion with kidney trouble and described two types of "high pressure" patients, one pale, the other red-faced, the difference being due to the condition of the vessels. The pale patient had general spasm of the circulatory system, the red-faced one a dilatation of the blood-vessels. Kidney troubles were thought to cause hypertension, but it appeared that in a number of cases kidney disease was the outcome of hypertension. It had been ascertained that in the pale type substances (peptones) producing arterial spasm circulated in the blood. In acute nephritis the kidney vessels were in a condition of spasm. In older persons the blood-vessels were less expansible, but had a greater capacity; the first condition increased blood pressure, the latter counteracted it, and the physiological diminution of cardiac force tended to keep the pressure down in older persons. It could be said that arterio-sclerosis was prevalent in persons whose hearts had remained young in spite of the changes in the blood-vessels due to age.

Prof. J. Pal stated that according to the generally accepted notion the level of blood pressure was proportionate—assuming constancy of blood volume and of cardiac efficiency—to the sum total of resistance offered in the arterioles and capillaries. The vessels in the intestinal organs especially played an important part in this connexion. Increased resistance (or narrowing of the lumen) in these vessels caused pressure in other regions, where less resistance was offered; the cerebral circulation was especially prone to passive congestion, accompanied at times by spasm in the cerebral arteries, if the congestion took place suddenly. Repeated attacks of increased blood pressure tended to produce a condition of

permanent high pressure, without manifestation of arterio-sclerosis visible at post-mortem examination. The vessels were hard to the touch during life, and offered great resistance to cardiac effort, but no anatomical lesion was discernible. Prof. Pal explained this condition by assuming an increased tonus of the cells; he called it "hypertonia," and thought it a disease sui generis, but often associated with and obscured by renal disease or arterio-sclerosis. It produced a hardening of the arteries, but the condition was amenable to treatment and might disappear if attacked in its early stages; the chronic form entailed disease of the kidney, of the pancreas, the brain, of the retina. Hypertonia was nowadays frequent, perhaps due to mental stress.

Other Circulatory Disorders.

Dr. Herxheimer (Wiesbaden) pointed out that diabetes was frequent in hypertonic patients; Prof. R. Schmidt (Prague) emphasised the rarity of carcinoma and tuberculosis in such cases. Dr. Lichtwitz (Altona) read a paper on severe trophic disturbances due to underfeeding, differing from cases observed during the war in that œdema was exceptional.

Prof. Knud Faber (Copenhagen) discussed the problem of blood-glycogen in diabetes. The percentage quantity in the normal blood, he said, was constant for each individual; in diabetic patients the organism had a tendency to maintain the same percentage proportion, which gave an important clue to therapeutic measures.

Prof. Schmidt had treated abnormal adiposity by injections of milk combined with thyroid gland by mouth, and had obtained excellent results—e.g., a loss of 2½ kg. in two days without any other dietetic measures. After attaining the desired drop in weight, the level could be maintained by prolonged thyroid treatment; exact differentiation of the cases suitable for this treatment was not yet possible.

The ætiology of hæmatoporphyria was discussed by Dr. Weiss and Dr. P. Kammerer, who stated that it was not certain whether a nervous disturbance of metabolism or an infection of the liver was responsible. Prof. G. Singer (Vienna) demonstrated a case of sclerodermia diffusa, which he treated with thyroid and ovarian extract, with excellent results. His observations, based on a number of cases, led him to explain this disease as a manifestation of hypothyroidism in the subcutaneous tissue, often associated with hypofunction of the germ-cells. The remedies were best given first by mouth, then by subcutaneous injections. Dr. Lichtenstern reported on his observations of 28 cases treated with transplantation of generative glands. In six cases the operation was performed for the purpose of counteracting the results of complete castration, done a long time ago. The results were most gratifying, the psychic and physical functions being restored. In the majority of favourable cases the results were lasting; in one patient eight years had already elapsed since the operation. In some cases, only temporary relief or improvement was obtained.

Pathology of Internal Secretion.

One afternoon was devoted entirely to demonstrations of the pathology of internal secretion. Prof. Pirquet showed children with premature development of sexual characters (3½ years old), a girl of 10 years, normally developed, who was born weighing only 790 g. (26 oz.), a girl with regional absence of the subcutaneous fat, a case of early sclerodermia; all these patients showed abnormalities of the glands of internal secretion. Dr. B. Aschner showed females suffering from "physiological disturbances," as he termed them, of these glands. He included anæmia, chlorosis, adiposity, and amenorrhœa under this expression, and proved that by organotherapy and repeated venesections very good effects were obtained. A case demonstrated by Prof. W. Falta, showing a tumour of the hypophysis, was a real acromegalic giant, whilst Dr. Bauer discussed the mechanism of dwarfism, and demonstrated a number of dwarfs whose condition was due not to inhibition of the thyroid function, but either to premature ossification of the epiphyseal site or to lack of growth stimulus. Most of these patients stopped growing after suffering from some infectious disease; one had suffered from a deforming arthritis since his seventh year, one had been attacked by an inflammation of the vertebral column. A woman, aged 41, had lost all her hair and nearly all subcutaneous fat within three months, her weight going down from 70 kg. to 40 kg. after an attack of influenza. A young man had also been attacked by influenza (? encephalitis lethargica), and had since that time developed marked gigantism. Prof. Falta showed a few cases of complete loss of hair on the body and nearly complete absence of the eyebrows and eyelashes, with very marked asthenia. Treatment with thyroid and ovarian tablets was most effective. Abnormalities of hair growth were demonstrated by Prof. Redlich, and Prof. J. Wagner-Jauregg showed dystrophic conditions, chiefly affecting the subcutaneous fat, caused by encephalitis.

On the last day of the congress devoted to scientific discussions over 80 speakers took part. No more than four minutes were allotted to each speaker, with the exception of introducers of a subject. Dr. Königsfeld pointed out the importance of the skin as a means of protection against disease, and to the production of protective substances against carcinomata by the actinic rays. Dr. Herrmann (Carlsbad) had found that by elevating the abdomen and legs it is possible to relieve the excruciating pain of gall-stone colic. Profs. Hofbauer and Wenckebach obtained similar results by turning the patient quickly on his right side, and thus "squeezing out" his liver by means of the diaphragm. Dr. Rostocki (Dresden) had observed a marked frequency of pulmonary cancer amongst miners; in Vienna, Hamburg, and Königsberg, bronchial cancer, formerly rare, is now found fairly often. Dr. Götze (Frankfort) stated that phrenicotomy is often most effectual in pulmonary phthisis, and much more advisable, because of its simplicity, than the repeated production of artificial pneumothorax. Treatment of pulmonary tuberculosis with tuberculin by the percutaneous method was strongly opposed by many experts.

An exhibition of apparatus and drugs was held during the congress, all the latest developments of electro-therapeutic, actinic, and optical work being on view.

CZECHO-SLOVAKIA.

(FROM OUR OWN CORRESPONDENT.)

The Peace of the Red Cross.

ON March 31st, "White Saturday," the "Peace of the Red Cross" was solemnly promulgated in a special session of Parliament. This Easter-time ceremony has now been held for three successive years; the idea was conceived by Dr. Alice G. Masaryk, daughter of the President of the Republic, who is the president of the Czecho-Slovak Red Cross; at Easter this organisation makes a great and increasingly successful effort to stop all political quarrels and discussion and to interest the public in social and public health questions, in a manner recalling the mediæval Truce of God. This year's response from the daily press and the public was remarkable; the Easter Sunday papers contained articles on public health and social topics written by prominent politicians, by party leaders, by highly-placed State officials, and by scientific authorities. This part of the Red Cross campaign was purely educational, no appeal for money being made. A "drive" for funds will follow in May, in coöperation with the Tuberculosis League, the Venereal Diseases Society, and the Abstinence League. At a recent meeting of the League of Red Cross Societies the Czecho-Slovak delegates proposed an extension of the idea of a Peace of the Red Cross to all States represented in the League.

Social Insurance Legislation.

The Social Insurance Bill dealing with sickness, invalidity, and old age insurance has been introduced into Parliament to be considered during the summer session. It represents one of the most difficult problems which have confronted the present Coalition Government. The preliminary studies undertaken by the Ministry of Social Welfare occupied more than a year. A permanent committee composed of political and professional workers drafted the Bill; the Parliamentary procedure will probably take at least seven months, but it is hoped to put the Bill into effect on Jan. 1st, 1924. The terms of the Bill are very complicated, comprising over 300 sections. The insurance will cover not only the working class but also persons of independent means up to a certain figure. A voluminous report has been prepared in connexion with the measure, and a special memorandum on the statistical aspect of the problem is being printed. The insurance will include 3,200,000 workpeople, and will involve a yearly expenditure of 1¾ milliards of Czecho-Slovak crowns. The main lines of the Bill were drafted by Dr. L. Winter, who was the first Minister of Social Welfare in the independent Republic.

Treatment of Alcoholism.

The Czecho-Slovak Abstinence Society is about to open a home for alcoholics at Tuchlov, near Teplice. Assisted by the Ministry of Health, the society bought for this purpose a small castle set in attractive surroundings and requiring no adaptation. There is room for 50 inmates; treatment will be both medical and educational, and although residence will be compulsory, everything possible will be done to avoid the creation of a prison atmosphere.

A New Medical Curriculum.

The medical press is discussing the suggested reforms in the medical curriculum which was drafted by Prof. Jaroslav Hlava, the doyen of the medical profession in Czecho-Slovakia. Prof. Hlava detailed his plan at the first congress of Czecho-Slovak University teachers, held in May, 1922. It was then decided that a special committee should be appointed to work out definite plans for reform on the basis of Prof. Hlava's scheme. The suggested reform would not alter the time—five years—now required for completion of the medical course, but a compulsory "practical year" for all doctors of medicine will be introduced, and will automatically prolong the study of medicine by another year. Prof. Hlava prescribes for the first four semesters the theoretical study of basic medical sciences, and for the fifth semester preliminary instruction in internal and external medicine. The remainder of the curriculum he proposes to devote to clinical studies. The greatest innovation, however, is Prof. Hlava's scheme for examinations, which would be in groups, the first group to be taken before Christmas in the fifth semester, the second to be taken at the end of the eighth semester, the third group to be begun at the end of the tenth and finished in the eleventh semester. The successful candidate would then have the right to use the title of physician. The degree of doctor of medicine would only be obtainable after presentation of a scientific thesis, according to the French system. This last provision is the only one to which any considerable exception is taken by medical men.

A COUNTRY HOUSE HEALTH RESORT.

ON April 27th the new sanatorium at Rendlesham Hall, Wickham Market, Suffolk, was inaugurated by a luncheon at which were present many distinguished medical and lay visitors including Mr. W. Bingham, chairman of the undertaking; Sir Alfred T. Davies, of the Board of Education; Mr. F. W. Raffety, L.C.C.; Rev. E. J. Barston, chairman of the London Congregational Union; Rev. J. A. Sharp, ex-chairman of the Wesleyan Conference; and Mr. Tom Wing. The following representatives of the medical profession were also present: Sir Humphry Rolleston (President of the Royal College of Physicians of London), Sir Sydney Russell-Wells, M.P., Lady Barrett, Dr. Jane Walker, Sir Robert Armstrong-Jones, Sir William Willcox, Sir James Purves-Stewart, Mr. McAdam Eccles, Dr. J. Burnett Rae, Dr. Basil Price, Mr. H. L. Sackett, Mr. W. E. M. Mitchell, and the representative of THE LANCET.

The objects of the sanatorium are to treat cases of alcoholism and drug addiction under conditions approximating to those obtained in an ordinary health resort. Experience has taught that there are a large number of people who are desirous of treatment so long as they can have the treatment in a home-like environment, and here at Rendlesham Hall the work that has been carried on for nearly 20 years at Beckenham Park will be continued under improved conditions, the increase of work necessitating the expansion of premises. The lease at Beckenham has 3½ years to run, and the work will be conducted at both institutions for that period.

At the luncheon Mr. Bingham, the chairman, spoke of the increasing pressure of cases and the need for their individual and sympathetic care in a suitable environment, such as Rendlesham Hall. Sir Sydney Russell-Wells told the story of Rendlesham Hall, a mansion with a curious social interest. Peter Thellusson, a banker, after acquiring great wealth, died in 1797 and his will directed that the major part of his fortune should accumulate during three generations and that the sum thus accumulated, estimated at several millions, should be used to purchase an estate for the then eldest lineal descendants. But the will, as everyone knows, was set aside by the courts, and in 1859 it was decided that the property should pass to the late Lord Rendlesham, the oldest male descendant of the banker's eldest son. The house, he said, had arisen on the very site where Thellusson had woven his ambitious schemes and had become a sanatorium—for the banker's dream of social conquest for his descendants by the power of accumulated wealth there would be substituted the greater work of healing the afflicted.

The guests at the luncheon inspected the house and grounds. The original estate consisted of some 5000 acres with 277 acres of park land. It is the park land which has now been purchased with the freehold of the Hall, which is fitted up as a large and luxurious country home. No less than 45 bedrooms are already prepared for occupation and 10 more will shortly be available. Here, in a beautifully wooded country, the windows face noble clumps of trees and smooth lawns, and the aim of the management is to secure for patients during their sojourn the amenities of a country mansion managed on the lines of a first-class hotel. The treatment is voluntary, patients being able to come and go as they like, but a six weeks' course of treatment is recommended. Luxurious carpets are everywhere in evidence, those for the stairs and corridors alone cost some £1250; the rooms are lofty, the drawing-rooms lead into a winter garden and conservatory, are elegantly furnished, and face the beautiful prospects; there are a fine billiard-room, smoking-room, and every facility for indoor recreation, while outdoors there is a small private golf course, as well as tennis courts and croquet lawns. In addition, there are 5½ acres of walled-in garden. At present there is a central heating instalment with wood fires for the bedrooms. Electricity is used for lighting, and later this agent will be utilised for radiators in the bedrooms. The water-supply is pure and abundant. The nearest village is 1½ miles from the Hall.

The treatment will be carried out under the direct management of Dr. W. Asten, who is a barrister as well as a medical man, while Dr. Francis Hare, the medical superintendent at Beckenham, will be the consulting physician. The charges are from 7 guineas to 15 guineas a week.

Correspondence.

"Audi alteram partem."

ANAPHYLAXIS AND THE ADMINISTRATION OF SERUM.

To the Editor of THE LANCET.

SIR,—I have read with great interest Dr. Poul Iversen's article on this subject in THE LANCET of April 7th. Nowadays it is the fashion to ridicule the "bugbear of anaphylaxis"; rare though it may be, the danger is still a real one, and when anaphylactic shock does happen it is such a dreadful calamity that no avoidable risks should be run. It is small consolation to a grieving mother to point to statistics, and to demonstrate how exceedingly unfortunate it is that such an unlikely accident should have happened to her particular child.

My own experience is as follows. I first began to use serum on a large scale in 1908 for the treatment of bacillary dysentery in Egypt and among the Mecca pilgrims at El Tor. From 1909 to 1914 I was engaged in the preparation of this serum for the Service Sanitaire Maritime et Quaranténaire d'Egypte, as well as in its administration. During part of the late war I was in charge of the dysentery department of a large general hospital in Egypt, and I have had occasion to treat many cases of bacillary dysentery during the past two years. Consequently I am in the position to record my impressions from the administration of many thousands of injections (though, unfortunately, I cannot give exact figures) of serum prepared by myself, the Lister Institute, Burroughs Wellcome and Co., the Institut Pasteur, the Istituto Sieroterapico of Milan, the Serum Institute of Berne, the Institut für Infektionskrankheiten of Berlin, and others; and I affirm unhesitatingly that I have never given an intravenous injection of serum without experiencing feelings of the most acute apprehension. It is true that I have not yet experienced a fatal result in my own practice from the administration of serum by any route, but I can recall many instances in which a fatality was, to all appearances, only averted by the narrowest possible margin; in fact, I think several patients would have died but for my invariable rule of having stimulants always at hand, and a syringe ready loaded with 10 minims of adrenalin and 1/75 gr. of atropine in every case of intravenous injection and in all cases of intramuscular injection where I had any reason to suspect sensitisation. On the other hand, a death from typical anaphylactic shock actually occurred in 1918 in the practice of one of my colleagues of a man who had been sensitised by the injection of no more than 0·75 c.cm. of serum contained in two doses of sensitised dysentery vaccine; and the first two horses whom I started to immunise in 1909, by means of intramuscular followed by intravenous injections of dysentery vaccine, also died with classical symptoms of anaphylactic shock. I subsequently abandoned intravenous injection and lost no more.

I quite agree with Dr. Iversen that different batches of serum differ widely in their toxicity, and I have found that the longer the serum has been kept—especially in hot countries—the greater has been its toxicity. Further, the addition of any antiseptic appears to enhance this property. On the other hand, all my cases exhibiting untoward effects have been adults; perhaps I have been exceptionally fortunate, but I do not remember ever to have had a moment's anxiety in the case of a child, although I have often given 40 c.cm. in a single dose to infants of less than a year old.

Further, Dr Iversen does not appear to differentiate sufficiently clearly between the different types of reaction which may occur. In my experience these have been:—

1. Definite anaphylactic shock, which is seen far more commonly after intravenous than after intramuscular injection. This takes place either during or shortly after the injection, and is characterised by sudden air-hunger, coughing, tingling in the hands and feet, often vomiting, and syncope or convulsions. *There is no urticaria*, and none of the ordinary symptoms of serum sickness, such as fever, a rash or joint pains. This condition is always dangerous, and often fatal.

2. A rigor, which in my experience has always begun with curious precision exactly 20 minutes after the commencement of an intravenous injection; it is followed by hyperpyrexia, and may occur whether the serum be injected undiluted—e.g., after 120 c.cm.—or diluted with saline or gum acacia saline. It is alarming in appearance, but not dangerous, and in fact may be of good prognostic import.

3. A precipitate serum reaction, which may show itself within an hour of injection. This is characterised by an intense urticaria, a generalised erythematous rash, vomiting and collapse. In the case of "horse-asthmatics," who are particularly liable to this form of reaction after an intramuscular injection, the condition may be dangerous from the violent asthma which may accompany it. If the injection be given intravenously, the condition described in section 1 may occur; I have still a vivid recollection of one such case in 1918, who was admitted to my wards apparently moribund after spending nearly 24 hours in an isolated latrine before being discovered. An intravenous injection of gum acacia saline was first given, and then serum was very cautiously added; he could not have received more than a c.cm. or so when violent coughing and air-hunger, followed by collapse, supervened. For more than an hour I thought he was dead, but he rallied after adrenalin and atropine, oxygen under pressure, and artificial respiration. Subsequently, he received several large intramuscular injections of serum, and made a complete recovery. A curious sequel to this and one other similar case was that neither man had a recurrence of asthma as long as I was able to observe them; possibly they had been desensitised.

4. The ordinary serum reaction, which usually occurs from five to ten days after the injection of serum intramuscularly. This is so well recognised that no description of it is needed, and in my experience at least it is never dangerous. It is particularly prone to be severe after old serum has been given, but is no contra-indication to further injections of serum even when present—thus differing from true anaphylactic shock.

Again, Dr. Iversen appears to deny the value of desensitisation; this seems to me to be a most dangerous doctrine to preach. Subsequently to 1917 nearly all my patients have received previous injections of serum for wounds, diphtheria, dysentery, or in sensitised dysentery vaccine; the fatal case above recorded, and all my own cases who nearly died, had not been desensitised, whereas I cannot but attribute my immunity from anxiety in other cases to the meticulous care with which desensitisation has been carried out as a routine practice.

In conclusion, in my experience the intramuscular injection of serum should remain the route of choice as being almost as efficacious as, and far safer than, the intravenous. It is obvious that desperate diseases require desperate remedies; in such cases the risks incidental to the intravenous route must be taken, although even then I shall continue to desensitise by the injection intravenously of four doses of ½ to 1 c.cm. at intervals of 15 minutes.

I am, Sir, yours faithfully,

J. GRAHAM WILLMORE.

Chelsfield, Kent, April 30th, 1923.

INSURANCE PRACTICE.

To the Editor of THE LANCET.

SIR,—One sentence in the letter from "Rusticus" in THE LANCET of April 21st, p. 819, hits the right nail on the head as far as the country panel practitioner is concerned.

> "It was easy to see that the regulations were framed for the town practitioner, that some of them were next to impossible in the country."

I may be wrong, but I venture to think that when the thousand and one rules and regulations of the National Insurance were framed, no pukka representative of the country panel practitioner had a say in it. Now many of these rules have been cancelled, augmented, diminished to such an extent that what might have been harmony is cacophony.

The professional work of the real country practitioner on the panel is quite different from that of the town practitioner. Many of the diseases may be the same, but the work entailed to treat and visit these cases, to give certificates, and so on is very different from that of a practitioner who has a large panel within a half-mile radius.

"Rusticus" says, "Anyhow, thank God, I am a country practitioner!" I agree with him and clasp his hand over it. But when new regulations and rules materialise, if they ever do, we country panel practitioners must have a bigger say than we have had heretofore.

I am, Sir, yours faithfully,

R. T. RICHMOND.

Seascale, Cumberland, April 23rd, 1923.

TUBERCULIN IN PRIVATE PRACTICE.

To the Editor of THE LANCET.

SIR,—In a paper published in THE LANCET of March 1st, 1913, I gave a Summary of 340 Cases of Pulmonary Tuberculosis, treated during 25 Years Practice, treated with and without tuberculin. In tabular form the results were as follow:—

In 100 Cases Treated without Tuberculin.

Arrest of disease.	Improvement.	Loss of weight and febrile conditions continuing.	Advanced stage.	Continuation of treatment in sanatoriums and elsewhere.	Deaths.
23	29	21	7	12	8
In 100 Cases Treated with New Tuberculin, T.R.					
25	30	21	6	13	5

From August 1st, 1911, to August 1st, 1921, I treated 200 cases of pulmonary tuberculosis by serial tuberculin administration. The dilutions used were, first, six dilutions of P.T.O.; next, four dilutions of P.T.; and next, two dilutions of Koch's old tuberculin, albumose-free. Injections were given at first twice weekly, then once a week, and afterwards once a fortnight. In the absence of reaction each successive dose was double the preceding; in the event of a rise of temperature the previous dose was repeated. Put in tabular form these further results are as follow:—

In 200 Cases (two untraced) Treated with P.T.O., P.T., T. (Albumose-free) Sequence.

54	80	17	5	33	9
or divided by two to compare with the percentages of the former series—					
27	40	8·5	2·5	16·5	4·5

Of the deaths at least two out of the nine were due to other causes than pulmonary tuberculosis. In two cases efforts to trace, hitherto unsuccessful, are being continued.—I am, Sir, yours faithfully,

Southport, April 17th, 1923. J. C. VOIGT, M.D. Edin.

SPASMODIC DYSMENORRHŒA.

To the Editor of THE LANCET.

SIR,—In Dr. G. Blacker's contribution on the treatment of spasmodic dysmenorrhœa, in your issue of April 21st, there is not one word about the neurotic basis of this symptom. Can it be that gynæcologists have not yet realised that spasmodic dysmenorrhœa is a manifestation of anxiety hysteria? The exact causation is not uncertain, as Dr. Blacker states; it is always hysterical and other hysterical symptoms nearly always co-exist. Even in the old days this condition was frequently cured by hypnotism and now it can always be cured by psychoanalysis. I have even had patients under psychoanalytical treatment who have told me that I had cured this symptom, although previously I never knew that they suffered from it. Every case of spasmodic dysmenorrhœa is one of anxiety hysteria curable by psychological methods, and those patients who are cured by operation are cured by suggestion of a very potent character. It would not be far wrong to say that the converse is also true—viz., that every case of anxiety hysteria suffers from spasmodic dysmenorrhœa.

I am, Sir, yours faithfully,

W. H. B. STODDART.

Cavendish-square, W., April 24th, 1923.

PRACTICE ABROAD.

To the Editor of THE LANCET.

SIR,—The reference in your issue of April 7th to our now extinct Continental Anglo-American Medical Society (which personally I greatly regret) prompts me to call the attention of your readers to the fact that within the next few years there will be a number of vacancies for English practitioners in France and sundry other countries. I have remarked that as English doctors practising abroad die out their places are not taken by other Englishmen, no doubt for the simple reason that since the tightening up of the conditions of acquiring the right to practise in France no Englishmen holding the French qualification are available—a fact much to be deplored in the interests of the travelling British, and I may add American, public, comparatively few of whom are familiar with the language.

Given a knowledge of the French language—which can easily be acquired when young by spending a few terms in a French school or even by passing the holidays in a French family—there is no particular difficulty in acquiring the right to practise. The one essential thing is to pass the French *baccalauréat*, but this I presume would be accepted by English university authorities as the equivalent of the matriculation examination. It is necessary to pass *all* the examinations one by one, but if this be done concurrently with the English curriculum no particular difficulty need be experienced, at most a few weeks' coaching by a French tutor.

Life in French watering places and health resorts is distinctly agreeable, and practice there offers many advantages. Parents who contemplate a medical career for their sons might well consider the practicability of giving it a French twist.

I am, Sir, yours faithfully,

Algiers, April 24th, 1923. ALFRED S. GUBB, M.D.

OPERATIONS ON TONSILS AND ADENOIDS: A POSSIBLE DANGER.

To the Editor of THE LANCET.

SIR,—The escape into the mouth of extracted teeth or other foreign bodies is well known to be an accident against which precautions must be taken in dental operations, but I do not find that much attention has been paid to the existence of a similar danger during other operations involving the use of instruments within the mouth, particularly for the removal of tonsils and adenoids in young children. On making the usual inspection beforehand one often finds loose milk-teeth, and hitherto I have, as I believe is customary, usually been content with noting them for avoidance in inserting the gag. The presence of such a tooth is, however, inconvenient, and there is always risk that in the course of the operation it may be dislodged; it is then apt to be lost in the blood, and there will be some concern until it is recovered, for dropping into the throat and inhalation into the air-tube (as in dental cases) is by no means unlikely. Some years ago Sir StClair Thomson recorded fully[1] a case, originally a dental one, in which (after consulta-

[1] Practitioner, August, 1918.

tion with Sir James Dundas-Grant and Mr. E. D. D. Davis) he removed, by lower bronchoscopy, a tooth impacted in a secondary bronchus. Two attempts by upper bronchoscopy had previously been made. References to other cases are given and an interesting medico-legal question raised as to the responsibilities of the operator and anæsthetist respectively.

I would, therefore, advise that such teeth should be removed *before the operation is begun*, the need for so doing being explained to the parents, who may otherwise suppose there has been carelessness or clumsiness.

I am, Sir, yours faithfully,

London, N.W., April 20th, 1923. J. D. MORTIMER.

TUBERCULOSIS OF SACRO-ILIAC JOINT.

To the Editor of THE LANCET.

SIR,—After reading Mr. H. C. W. Nuttall's interesting paper in THE LANCET of April 28th, it becomes evident that he wrote it prior to the publication of Dr. A. Rollier's "Heliotherapy," which you review on another page of the same issue. How else could he make the statement that "the rarity of the disease precludes the possibility of impressive statistics"? In Appendix III. of that book, on pages iv. and vi., are statistics of no less than 83 cases of this condition which Dr. Rollier has personally treated at Leysin.

As Mr. Nuttall recommends still more radical methods of treatment than have been used in the past, it may be of interest to your readers to glance at the actual details of Dr. Rollier's figures, which for the sake of brevity I have combined in one table.

Cases of Sacro-Iliac Disease treated by Heliotherapy.

—	Total.	Healed.	Improved.	Stationary.	Died.
Without sinuses ..	40	36	3	—	1 (r)
With sinuses..	43	21	9	8	5 (a)
—	83	57	12	8	6

(r) = affected with renal tuberculosis.
(a) = affected with amyloid degeneration on arrival.

I am, Sir, yours faithfully,

PAUL BERNARD ROTH.

Harley-street, W., April 28th, 1923.

SYPHILIS OF THE MEDIASTINUM.

To the Editor of THE LANCET.

SIR,—If it is not too late to return to the subject, I would thank Dr. Renton for his kindly rejoinder to my letter in THE LANCET of April 14th. I fully realise that he has authority on his side in saying that there is gross displacement of the heart in cases of mediastinal sarcoma, but authority is, I believe, in this case wrong. Lest I had deceived myself, I asked my house physician, Dr. J. Whitby, to look up the post-mortem records of a few recent cases of mediastinal sarcoma at the Victoria Park Chest Hospital. He has done so, with the result that in no case was the heart displaced to any appreciable extent, and if displaced at all, was slightly towards the side of the main mass of the growth. In two cases which I have seen recently in private, there was also no cardiac displacement. Therefore in six cases, five of which had histological confirmation, seen within little more than 12 months, this sign was definitely negative.

As I wrote before, the question of the frequency of the occurrence of syphilitic lesions in the lungs and mediastinum is a controversial one, and is, moreover, one of such great importance that any published cases of this condition require incontrovertible proof.

I am, Sir, yours faithfully,

Harley-street, W., April 27th, 1923. F. G. CHANDLER.

Public Health Services.

THE RURAL PRACTITIONER'S NEEDS.

"Rusticus" has aroused an echo from another country panel practitioner. Dr. R. T. Richmond reminds us in his letter in the present issue that the work of the rural practitioner is in many respects different from that of his colleague in the towns. We may frankly add that it is often more difficult. In the country the proportion of visits to consultations at the doctor's surgery is known to be greater than in urban practice. The nature of the work is more arduous and the responsibility of the practitioner is greater, because the hospital and its staff are not so easily accessible. Nevertheless, the agricultural worker is an important asset to the State, and it is no ignoble task to take part in arresting the steady stream of country-bred labourers to the industrial centres, and in making the conditions which must tend to reverse the direction of the stream. The countryside is the proper nursery of an A1 population, and for this reason the status of the rural practitioner is a matter which the State cannot afford to ignore. It is when we come to consider the suggested remedies that the real difficulties are encountered. In a uniform national scheme, administered from a central office, it is not easy to see how a fair discrimination can be secured. Dr. J. P. Williams Freeman, the champion of the country practitioner, is in favour of an "extra grant." But extra grants were condemned by the Geddes Committee, and in the present financial stress the Treasury cannot be expected to make them. Then the money must come from the central pool, and the problem becomes one of redistribution. The Distribution Committee might assess the rural areas on a more liberal basis; but this would be difficult so long as the Insurance Committee area is the unit and practitioners in that area are perforce treated alike. Any such scheme would naturally involve a reduction in the proportion of the urban areas. If individual practices are considered, then an elaboration of the mileage scheme would probably be the best solution. But the problem is bristling with difficulties.

THE WASSERMANN TEST AND THE RANGE OF MEDICAL SERVICE UNDER THE INSURANCE ACTS.

A hearing recently took place at Birmingham into the question whether the taking of venous blood as a preliminary to the Wassermann test for syphilis came within the range of medical service under Article 38 of the National Health Insurance Regulations. There was no dispute as to the facts. An anonymous female patient suffering from tertiary syphilis consulted an insurance doctor, and, knowing of his experience in venereal disease, asked him to take the necessary steps for the performance of a Wassermann test. The patient was an insured person on his list. She insisted on the non-disclosure of her name, to the extent of preferring to pay the specialist's fee of 5 guineas, but there was no other unusual feature of the case. The local medical committee came to the conclusion that the venepuncture was outside the range of medical service under the Act, on the ground that it was the proper work of a specialist and not that of a general practitioner of ordinary professional competence and skill; and the Insurance Committee agreed with the decision. The Court of Referees, which consisted of a barrister-at-law and two medical men, decided that intravenous puncture for obtaining blood for analysis was not to be regarded as of greater difficulty, say, than the passage of a catheter in the male. A practitioner not possessing the necessary aptitude could acquire it without difficulty. In places well provided with facilities for the treatment of venereal disease, a patient might admittedly obtain more skill at them than from his insurance doctor in this particular manœuvre, but to remove from the range of medical

service under the Acts services to be rendered to a patient so placed would be to whittle away the duties of the general practitioner to a degree inimical, not only to the policy of the Acts, but also to the best interests of the medical profession. Possible risk of failure was not a matter, in the Court's view, which should weigh against the general conclusion. That risk was common to many a service which insurance doctors are admittedly under obligation to perform should the patient require it.

MEDICAL SERVICE OF THE INSURANCE ACTS: JOINT STANDING COMMITTEE.

At the Plenary Conference of bodies interested in insurance medical service, held at the Guildhall, London, on Jan. 30th and 31st last, a Standing Committee was appointed to consider the various suggestions made during the Conference. This committee, consisting of six representatives each of approved societies and insurance practitioners, four of insurance committees, and two of pharmacists, has now held three meetings. At the first meeting on April 13th Dr. H. B. Brackenbury was unanimously elected chairman, and Mr. W. Gill Hodgson, clerk to the Liverpool Insurance Committee (not being a member of the Standing Committee), as secretary. The first meeting dealt with matters relating to the efficiency of service, foremost the question of surgery and waiting-room accommodation, the following resolution being passed unanimously:—

That, in order to carry out paragraph 8 (4) of Schedule I. of the Medical Benefit Regulations, where an insurance committee has received a complaint from any quarter, or from other cause has reason to question whether adequate surgery and waiting-room accommodation is provided either in specific cases or generally in its areas, it should, jointly with the Panel Committee, investigate the matter, and if the accommodation in any case is not found satisfactory, or is not made satisfactory, should refer the case to the Medical Service Subcommittee.

Sir William Glyn-Jones undertook to bring this decision before the Federated Associations of Insurance Committees, and Dr. Brackenbury to place it before the Panel Committees via the Insurance Acts Committee. At the second meeting the consideration of efficiency of service was resumed, and the meeting to be held to-day (May 4th) is to deal with the interpretation of the range of medical service to be given to insured persons.

THE LATE DR. J. K. STEWART.—Dr. John Kilpatrick Stewart, who died suddenly on April 15th, was a native of Ballymena, and received his early education at the Academy in that town. He graduated M.B., B.Ch. in 1915, with honours, at the University of Belfast and almost immediately afterwards joined the R.A.M.C., and was severely wounded while serving in France. After demobilisation he was appointed medical officer to the Randalstown District Dispensary, where he won the affection and regard of all classes of the community. He leaves a widow and three small children.

WORTHING HOSPITAL. — Lord Athlone visited Worthing on April 24th and opened the new wing at this hospital which has been erected at a cost of £7918. The scheme originated in 1919, the object being to establish a maternity ward, a paying patients' ward, and surgical wards as a war memorial. In declaring the new wing open, the Earl of Athlone said the maternity wards were meeting a great need. As to accommodation for paying patients, a large number of people could not afford to pay considerable sums to go into nursing homes during sickness, and many preferred to have a little more comfort than they would obtain in the general wards. There was a great need for these wards, and he hoped very shortly to be able to state that he had been able to start this kind of nursing home in connexion with the Middlesex Hospital. He expressed his pleasure in coming to visit the Worthing Hospital, which is a very old foundation. It commenced in two rooms as a dispensary in 1829, and removed to Chapel-road in 1844. The first portion of the present building was erected in 1881, and there were additions in 1887 and 1889, and in 1901 hospital was substituted for infirmary. The out-patients' wards were established in 1912 as a memorial to King Edward.

Obituary.

SIR SHIRLEY F. MURPHY, K.B.E., F.R.C.S. ENG., FIRST MEDICAL OFFICER OF HEALTH, COUNTY OF LONDON.

BY the death of Sir Shirley Murphy, which took place on April 27th, at his home at Regent's Park, the country has lost a great exponent of the science of hygiene and epidemiology, and a public health officer whose 40 years of labour have left their mark in the greater well-being and health of the whole community, above all in London. Although he had reached the age of 74, he had, until two or three years ago, been actively and strenuously employed with the army duties which he had sought at once on the outbreak of the war, and had continued, with great public spirit and practically without intermission, until after the Armistice. It was only since then that signs of

SIR SHIRLEY MURPHY.

failing health had been conspicuous, and he had been crippled by severe attacks of neuralgia. He had continued, notwithstanding, to write and take part in affairs, as far as his health allowed, until a few days before his death.

Shirley Forster Murphy was born on May 21st, 1848. His parents were then living in London, and he was sent to University College School in Gower-street. Thence he went to Guy's Hospital, and qualified M.R.C.S. and L.S.A. in 1870. After brief tenure of a hospital appointment at Manchester he was advised, on the ground of suspected tuberculosis, to go abroad, and took two years of medical service in the East under the P. and O. Company. Returning to London, he was appointed an assistant medical officer at the Metropolitan Asylums Board hospital at Homerton, which at that period—the secondary wave of the great pandemic—was often congested with small-pox cases as well as with typhoid and other infectious diseases. Experience there led Murphy, in 1875, to the appointment of resident medical officer at the London Fever Hospital, then a great school for infectious fevers, with the recent traditions of Murchison and Sir W. Jenner. He remained resident medical officer, under Broadbent and Cayley as visiting physicians, until 1878. By that time, having become more and more

drawn to epidemiological and preventive questions—the London typhoid of the period, it may be remembered, was still a perpetual reminder to those who treated it of the effects of insanitary environment and the need for better hygiene in the metropolis—he adopted public medicine as a career and obtained the appointment of medical officer of health for St. Pancras, vacated by his friend Dr. Thomas Stevenson. The post offered an enormous experience and field for work, but the conditions under which improvements could be produced or disease prevented were almost heart-breaking. A few of the London vestries at that time gave moderate encouragement to the sanitary reformer, but none was to be found in this instance. A time came when reactionary opposition became so pronounced that Murphy decided that his energies should no longer be destroyed by it. Resigning from St. Pancras in 1884, he took the bold step of setting up in Queen Anne-street as a consultant in public health, with the aid of one or two minor official appointments, and for five strenuous years was busy with every branch of his subject. Since 1876 he had been secretary of the Epidemiological Society—an office which he held till 1888—while in 1879 he had become secretary of the Society of Medical Officers of Health. He worked these societies hard, developed them, produced subjects for discussion, and laid everyone under tribute on the epidemiological questions of the day—milk infection, small-pox transmission, vaccination evidence, periodicity of disease, epidemic diarrhœa, and many other matters. On these he frequently contributed original observations, while he was able to secure or interpret the views of such men as Buchanan, Ballard, Power, Longstaff, or, indeed, of almost any of the leading public health experts of that time, medical and non-medical, who freely took him into their confidence. He knew their work and enlisted their support in book-making, notably in the preparation of the manual, "Our Homes, and How to Make Them Healthy," published in 1884, to which many distinguished authors contributed, as was the case some years afterwards in the large treatise on "Hygiene" edited by Stevenson and Murphy. By foreign travel, which he continued in later life, he extended his circle of collaborators and made enduring friendships with foreign public health workers. He wrote much for different periodicals and began a long association with THE LANCET by contributions on public health policy and developments, which have been highly prized and by which this journal has greatly benefited. His zeal, special knowledge, and wide outlook became more and more appreciated. He had married, in 1880, Ellen Theodora, daughter of the late Henry S. King, J.P., and in this period, as throughout his whole life, his wife's keen intellect, industry, and sympathy were given him fully and unsparingly to aid his work. He had the advantage also at this time of special employment for Government departments, particularly for the Local Government Board and its medical officers—an association which lasted throughout his subsequent official career—while he added to his experience of small-pox and vaccination at the Animal Vaccine Establishment at Lamb's Conduit-street, where he was responsible for the preparation of calf lymph.

When the London County Council came into being, Murphy, with these qualifications, added to an intimate knowledge of London, its needs, its complicated public health organisation, and its many social and philanthropic agencies, had strong claims to the post of its first medical officer. This appointment, strongly contested as it was, he secured in 1889, and thereafter held for 22 years. It was one with many difficulties as well as opportunities—difficulties which were not lessened by the strong political bias, first on one side and then on the other, which characterised the assembly to which he was responsible, and the opposing political forces that operated in the other municipal bodies with which coöperation was necessary from the public health point of view. In the County of London the direct administration for which the medical officer of health was responsible under statute, though more restricted in scope than in the case of large cities elsewhere, was of exceptional importance in view of the size of the metropolis and the special interests involved. But still more important was the surveillance of the public health work of other bodies, the new borough councils, and the various ad hoc administrations which characterise London municipal government—work of coördination, consultation, standardising, or action as complainant, referee or as a court of appeal—to which was added the duty of representing the position and health needs of London as a whole to the central government departments or to Parliament. Murphy developed both these functions, and established them on a sound and durable footing. In matters directly under his authority, such as the scheduling of unhealthy areas, the regulation of cowsheds, common lodging-houses, seamen's quarters, offensive businesses, and the like, he succeeded in instituting a highly efficient inspection service and office methods. A night visit with Murphy to London common lodging-houses, night shelters, and the haunts of vagrants was an education in itself, and an illustration of his close personal knowledge of this aspect of his work. On the other side, he gave himself freely to the mass of advisory and committee work, conferences, Parliamentary inquiries, bill-drafting, by-law and regulation making—and all the combats and discussion entailed therewith—which during his term of office have settled so much of the practice of public hygiene as it exists now in London.

Underlying all this work was a persistent effort to visualise London requirements and the condition of the London population as a whole. The epidemiological studies which he had begun early were never dropped from stress of official duties; they were enlarged on every opportunity with the wealth of material which was now at his disposal. That they were effective was due primarily to Murphy's own assiduity and the labours of Dr. Hamer, Dr. Young, and others of his highly capable staff, and also in no small degree to the position which Murphy came to occupy in the public health service. Men like Power at the Local Government Board, Whitelegge at the Home Office, and later Newman at the Board of Education; epidemiologists such as Theodore Thomson, Bulstrode, Chalmers, Reece, Buchanan, Greenwood—the list could be extended indefinitely—were always ready, in their esteem and friendship for Murphy, and for reciprocal benefit, to respond to his inquiries and undertake the studies he desired. For few great populations have the tendencies of diseases and variation of diseases, infectious and non-infectious, and the mass causes which have influenced them, been worked out so fully as in the reports which Murphy originated and his successor, Sir W. Hamer, has since continued. The consideration given to these matters was of the widest; social changes, migration of population, peculiarities of individual diseases in the matters of their recurrence and natural history, were reviewed and in proportion. These studies aided Murphy greatly in the efforts which he always made to look ahead and forecast, not merely from the scientific interest of foretelling epidemics, but from the practical point of view of being prepared for them. But in the whole series of reports there was no undue straining to claim credit for recent preventive measures, however promising; no propaganda; and no play to the political gallery.

We must be content with this reference to the greatest part of his life work. The health of London and his own official writings are the best evidence of its value. They had received recognition during his tenure of office by the knighthood conferred on him in 1904—an occasion of a striking demonstration of the regard in which he was held by the Society of Medical Officers of Health, over which he presided in 1891 and 1892, and again in its jubilee year 1905. They were also recognised by the grant of the honorary Fellowship of the Royal College of Surgeons, and the Bissett Hawkins medal of the Royal College of Physi-

cians in 1908. On leaving office in 1911—a retirement which he had himself been willing to accelerate by a year or two in order to allow of the fusion of the public health work and education medical services of the County Council—Murphy continued his epidemiological studies and gave further services to various public health organisations with which he had always been in touch, particularly in the Epidemiological Society, of which he had been president in 1894–95, then merged in the Royal Society of Medicine; at the London Fever Hospital; and more recently at the Metropolitan Asylums Board as the nominee of the Ministry of Health. He presided in 1912 over the section of Sanitary Service at the Congress of the Royal Sanitary Institute in York in 1912, giving a notable address on the decline of birth- and death-rates. He also took a keen and affectionate interest in the Society of Apothecaries, which he had entered (by apprenticeship to the late Sir George Buchanan) in 1870, and where he became a member of the Court of Assistants, and in later years (1920–21) Master of the Society. We may here note another honour in the closing years of his life, of which he was particularly proud—the receipt of the Jenner medal of the Royal Society of Medicine in 1921.

The outbreak of the war sent Murphy back to active official duties within a few days. He was a Lieut.-Colonel R.A.M.C. on the Territorial list for special sanitary service, and was at once attached to the London Command, where he worked as specialist sanitary officer throughout the war under four successive Directors of Medical Services. His knowledge of London and its public health arrangements, and his organising ability, were invaluable in the problems of billeting, transport, and arrival of troops, hygiene of quarters, and sanitation in all its aspects in relation to the large military area and the mass of soldiers quartered or passing through London, as well as with the problems of cerebro-spinal fever and other epidemics which arose from time to time during this period. His activity and devotion to this duty, which was practically continuous for four years, were greatly appreciated. An account of it will, it is hoped, be included in the official history of the war. For these army services he received the K.B.E. (Mil.) in 1918.

The following appreciation is from a well-known public health officer and epidemiologist:—"To his contemporaries the memory of Murphy will ever remain as that of a loved and revered colleague and friend. He accomplished much for his own time and has left a rich inheritance of example to those who will follow him in the ever-widening field of public health administration. This is not the occasion to consider his published work which advanced the standard of administration and afforded a pattern for much contemporaneous inquiry. We would rather ask what manner of man he was, what the personality of him who has gone from us; what the hidden springs from which during a long official life, all this energy flowed. For behind the work there lies the spirit of the worker, and it was this which endeared him to his colleagues and contemporaries. To him disease was no chance accident of life, but evidence of the working of laws which he set himself reverently to examine. He sought Nature in her own crucible and in the spirit of humility which marks the true worker.

"To such natures there comes now and again a glimpse—a suggestion rather—of the majesty of all Nature's laws. He was fond of the phrase 'a working hypothesis,' a rule to be tested by every new set of circumstances to which it might be applied, and modified if fuller knowledge disclosed defect. This theme runs like a chord through much of his published work, and it had many variants. It appears very early in his epidemiological studies; it reappears in one of his latest published addresses, as when at York in 1912 he applied it towards elucidating the movement of the birth- and death-rates. Law in nature was to him as a law of being. The spirit of service was also strong in him, and explains much of the strenuous life he led. For him, to live was to serve, and herein lies the example for those who follow. Service to his fellows; service to England (as when during the war years and at an age when many might, without reproach, have been content as lookers-on, he undertook the duties of Sanitary Officer of the London Command); service to humanity, were dominant notes in his character. In many ways this spirit of service found illustration, but one recalls the succession of deserving lads who owed their start in life to his fatherly interest in them. It might be said also that the homeless and vagrant poor he regarded as his special care, for long before there was any organised provision of night shelters for them, he knew the number of those who nightly sought the companionship of their fellows under the stars on the Embankment, in the parks, or under the railway arches. It was social service of a high order, done characteristically, under the guise of official duty. Kindliness in thought and action pervaded his life."

Sir Shirley Murphy was buried at Brookwood cemetery on May 1st, after a service to his memory at St. Martin-in-the-Fields on the same morning, at which Lady Murphy and his two daughters, Sir H. Seymour King, and other relatives were present, together with many friends and representatives of public bodies.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Rear-Admiral W. Bett is placed on the Retd. List.

Surg. Capt. J. F. Hall to be Surg. Rear-Admiral.

Surg. Lieut.-Comdr. J. D. S. Higgins is placed on Retd. List.

Surg.-Lieuts. H. L. Douglas and J. T. Wylie to be Surg. Lieut.-Comdrs.

Royal Horse Guards.

Surg. Maj. E. D. Anderson, from Life Guards, to be Surg. Maj.

ROYAL ARMY MEDICAL CORPS.

Col. A. H. Morris, late R.A.M.C., retires on retd. pay.

Surg. Capt. G. O. Chambers, from Life Guards, to be Maj.

To be Capts.: Surg. Capt. A. B. H. Bridges (from Life Guards), and Capts. W. R. D. Hamilton and E. J. S. Bonnett (from R.A.M.C., Militia).

TERRITORIAL ARMY.

Maj. F. R. Harris is confirmed in his rank.

Maj. V. T. Carruthers (Res. of Off.) to be Maj.

Capt. F. G. Lescher (late R.A.M.C., Spec. Res.) to be Capt.

General Hospitals: The undermentioned relinquish their commissions and retain their rank except where otherwise stated: Lt.-Col. L. K. Harrison (Bt. Col.); Majs. G. W. Watson (Bt. Lt.-Col.), H. R. Dean, A. R. Hallam, and W. H. M. Telling (granted the rank of Lt.-Col.); Capts. J. le F. C. Burrow, P. Hamill (granted the rank of Maj.), W. R. Higgins, W. M. Munby, H. J. Slade, M. J. Stewart, C. W. Vining (granted the rank of Maj.), E. W. Assinder, J. Johnston, C. A. Moore (granted the rank of Maj.), H. B. W. Smith, H. E. Smith, W. C. Souter, and B. J. Ward.

Sanitary Companies: Capt. N. S. Golding relinquishes his commn. and retains the rank of Capt.

Supernumerary for service with O.T.C.: Maj. W. D. Sturrock ceases to be employed with the Field Amb. Section, Oxford University O.T.C. Lt. D. R. Wheeler ceases to be empld. with the Belfast University Contingent, Senior Div., O.T.C. Capt. C. H. Budd (late R.A.M.C., T.F.), to be Capt. for service with the Medical Unit of the Cambridge University Contingent, O.T.C. Capt. (local Maj.) W. Barclay resigns his commn. and is granted the rank of Maj.

ROYAL AIR FORCE.

Flight Lt. E. W. Longden relinquishes his temporary commission on ceasing to be employed.

TERRITORIAL DECORATION.

The King has conferred the Territorial Decoration upon the undermentioned officers: Lt.-Cols. J. Miller and S. G. Barling (General List, T.A. Res.); Majs. W. Y. Martin (ret.), J. A. H. Aitken, and J. R. Menzies.

Medical News.

UNIVERSITY OF CAMBRIDGE.—At examinations held recently the following candidates were successful:—

DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY.

Part I., Physics and Electrotechnics.—Mahmoud Ahmed Afifi, Narayan Mahadev Bodas, John E. Bowen, Burnett L. W. Clarke, Lionel R. G. de Glanville, Malcolm Frizell, Norman Grellier, William H. Hastings, Joseph F. James, Mahadev Dattatraya Joshi, Anna T. Kellock, Jane S. Knight, Gabriel J. Luyt, Alexander G. MacLeod, Margaret J. Moir, Huggahalli Sundara Rajan, Alexander Ross, William H. Rowden, Jessie E. Sheret, Edward W. Twining, Sorab Byramji Warden, and Edward V. Whitby.

Part II., Radiology and Electrology.—Mahmoud Ahmed Afifi, Eric G. Barker, John E. Bowen, Burnett L. W. Clarke, Harold K. G. Hodgson, Joseph F. James, Jane S. Knight, Huggahalli Sundara Rajan, William H. Rowden, James P. Thierens, and Edward W. Twining.

DIPLOMA IN PUBLIC HEALTH.

Dhirendranath Basu, Leila Savoja Chatterji, *Alexander J. Copeland, Nicholas D. Duzscombe, Elizabeth J. Findlay, Alfred T. Gailleton, Churchill H. Gunasekara, *James C. L. Hingston, †Spencer Hunt, Florence S. Kirk, Hilda L. Laidlaw, Frederick Lobo, Barbara R. A. Morton, Lalit Kumar Ray, Annabella A. Reid, Mary Russell, Beatrice M. Sellar, Yaimini Sen, and Annie E. Somerford.

* Distinguished in the application of Sanitary Science.
† Distinguished in the principles of Hygiene.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—A Hunterian lecture on Chronic Mastitis will be delivered in the theatre of the College in Lincoln's Inn-fields on May 9th at 5 P.M., by Prof. Geoffrey Keynes.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—An ordinary Comitia of the College was held on April 26th, the chair being occupied by the President, Sir Humphry Rolleston.

The following were elected to the Fellowship on the nomination of the Council: Dr. R. Hingston Fox, Dr. J. Porter Parkinson, Dr. D. W. Sutherland, Dr. D. G. Hall, Dr. W. S. Fox, Dr. J. C. H. Leicester, Dr. F. E. Tylecote, Dr. J. Owen, Dr. L. G. Parsons, Dr. John Parkinson, Dr. A. Hope Gosse, Dr. P. H. Manson-Bahr. Nominated by the Council under By-law XLI. (*b*): Sir Hugh Kerr Anderson and Dr. Byrom Bramwell.

The following were admitted as Members, having passed the required examination: Dr. C. Wm. Buckley, Dr. R. Coope, Dr. L. Cunningham, Dr. S. E. Denyer, Dr. J. D. H. Freshwater, Dr. Sylvia K. Hickson, Dr. R. Hilton, Dr. P. K. McCowan, Dr. A. Razik, Dr. M. E. Shaw, Dr. J. Stokes, Dr. G. B. White, Dr. V. R. Woodhill, Dr. F. H. Young.

Diplomas of L.R.C.P. were conferred upon 159 candidates who have passed the Final Examination in Medicine, Surgery, and Midwifery of the Conjoint Board and have complied with the necessary by-laws. The following are the names and medical schools of the successful candidates:—

C. Abbu, Madras; J. W. Alden, Oxford and St. Thomas's; F. G. Allan, St. Thomas's; D. D. Anderson, St. Bart.'s; Constance E. Appleton, King's Coll.; G. R. M. Apsey, Guy's; E. W. Arndt, Ceylon and Middlesex; N. Asherson, Univ. Coll.; Lucy T. Badcock, London; W. H. Bailie, St. Mary's; D. N. Balter, Vienna and St. George's; V. H. Barker, London; M. K. Barnett, Birmingham; Jessie H. Baxter, Univ. Coll.; A. H. Bennett, St. Bart.'s; H. W. Bland, Birmingham; B. Bourke, Dublin; C. G. Bowen, Guy's; J. F. Brailsford, Birmingham; O. Brenner, Birmingham; T. F. Briggs, St. Thomas's; B. Broadbent, Cambridge and St. Bart.'s; F. Brockington, King's Coll.; W. A. Brown, Guy's; Dorothy E. B. Buckmaster, London; Helen Bumstead, Charing Cross; J. T. Burrell, Cambridge and London; Viole C. Cameron, St. Mary's; J. M. Clarke, Otago and Middlesex; Olive G. Clouston, Cambridge and London; E. Cohen, Leeds; R. S. Coldrey, St. Bart.'s; P. Connan, King's Coll.; W. F. Cooper, Cambridge and St. Mary's; Florence E. Cowlin, Charing Cross; D. W. Crombie, McGill and London; S. J. Davies, St. Bart.'s; M. Denman, Middlesex; V. P. de Zoysa, Ceylon and Univ. Coll.; H. T. Edmunds, King's Coll.; D. G. M. Edwards, Univ. Coll.; R. S. Ellis, Birmingham; Lucy M. Elson, King's Coll.; Gwladys Evans, Cardiff and St. Mary's; M. W. H. Evans, Cambridge and London; V. F. Farr, St. Bart.'s; Emmie D. Fenwick, St. Mary's; Margaret Findlay, Cape and Royal Free; A. L. Finiefs, Paris and St. Mary's; G. H. Fitzgerald, Guy's; Annie Foner, Univ. Coll.; K. V. Francis, St. Mary's; Margery Freeborough, Royal Free and St. Mary's; F. W. Furniss, Cambridge and King's Coll.; P. C. C. Garnham, St. Bart.'s; Una Christina Garvin, Royal Free; Lena B. Gayer, Royal Free and London; L. Ghabrial, King's Coll.; Marjory A. Godfrey, Royal Free; S. J. Golden, London; Louisa P. Gordon, King's Coll.; Marion Greaves, Leeds; J. R. Hamerton, St. Bart.'s; L. W. Hamp, Birmingham; N. G. Harris, St. Thomas's; J. S. Hawes, London; Katharine M. Hick, Leeds; R. A. Highmoor, Cambridge and Leeds; D. B. Hitchings, Guy's; J. Holroyd, Manchester; W. D. Hoskins, Cardiff and St. Thomas's; D. H. Hubbs, Guy's; Audrey M. Hughes, Charing Cross; L. D. A. Hussey, King's Coll.; R. Jackson, Cambridge and Middlesex; T. James, St. Bart.'s; M. Jayakar, Bombay and Univ. Coll.; A. Jephcott, St. Bart.'s; F. Lawrence, London; Ruth A. M. Leak, King's Coll.; F. H. Leekam, St. Mary's; P. Leftwich, Univ. Coll.; E. Linfoot, Leeds; A. R. Lister, Cambridge and London; N. L. Lloyd, Guy's; L. P. Lockhart, Cambridge and St. Thomas's; Marion Lones, Univ. Coll.; C. A. Lupton, Cambridge and St. Thomas's; C. R. McClure, London; Phyllis C. Mackenzie, Westminster; Kate Madders, Univ. Coll.; C. C. Maguire, Birmingham; J. Marley, Liverpool; Edith T. Marshall, Royal Free; Edith W. W. Marshall, Univ. Coll.; W. H. Marston, Birmingham; L. Mather, Manchester; Kathleen F. Matthews, Univ. Coll.; M. Mitman, Guy's; V. S. Monie, Madras and Edinburgh; A. J. Morland, Univ. Coll.; N. R. Mucadam, Bombay and Royal Free; E. B. Murrell, Cambridge and St. Thomas's; H. W. Needham, Cape and St. Bart.'s; F. W. Pare, Manchester; C. M. Pearce, St. Bart.'s; T. V. Pearce, St. Thomas's; J. P. Peel, Leeds; A. F. Percy, Guy's; J. W. Perkins, Calcutta and St. Mary's; J. H. Piddock, Birmingham; L. R. W. Price, Cambridge and St. Bart.'s; Gertrude E. Pugmire, Liverpool; Margaret A. Quine, King's Coll.; R. P. Rees, Middlesex; Phyllis M. Rex, Royal Free and St. Mary's; M. M. Riad, Cairo; D. Riding, Liverpool; C. E. Roach-Smith, London; J. A. W. Roberton, St. Bart.'s; G. T. Robinson, Manchester; H. N. Rose, St. Bart.'s; May K. Ruddy, Charing Cross; A. Salama, Cairo; Edna M. Sanders, King's Coll.; D. H. Sarafian, Constantinople and Middlesex; Margaret V. Saul, King's Coll.; V. E. Schlesinger, Cambridge and Univ. Coll.; A. T. Schofield, Cambridge and St. Mary's; G. D. Shaw, Guy's; A. W. L. Smith, Manchester; C. N. Smith, Univ. Coll.; N. R. Smith, Sydney; C. F. V. Smout, Birmingham; E. G. Snaith, London; J. V. Sparks, Cambridge and St. Bart.'s; A. L. B. Stevens, Oxford and St. Thomas's; Ella M. Stratton, Royal Free; H. H. Sumption, St. Mary's; S. S. Suzman, Cape and Guy's; E. J. Targett and E. Thorpe, Birmingham; K. W. Todd, London; Olga F. Tregelles and Gladys M. Tullidge, Royal Free and St. Mary's; C. F. Turner, Birmingham; A. S. H. Walford, Cambridge and St. Thomas's; Marjory W. Warren, Royal Free; Constance C. M. Watson, Charing Cross; M. Weinbren, Guy's; L. E. H. Whitby, Cambridge and Middlesex; D. B. Whitlock, Guy's; M. C. Wilkinson and L. G. Williams, St. Thomas's; L. A. Willmott, St. Bart.'s; J. G. Wilson, Westminster; Lina Marie C. Wingfield, Royal Free; J. L. Woodhouse, Guy's; and M. I. Zimmerman, Westminster.

Diplomas in Tropical Medicine and Hygiene were conferred (in conjunction with the Royal College of Surgeons of England) upon the following 10 candidates from the London School of Tropical Medicine:—

R. Briercliffe, C. Cook, H. S. de Boer, M. L. Dhawan, C. H. Han, A. G. Harsant, C. de C. Martin, A. C. Rebello, R. H. Simpson, and E. Tagoe.

Diplomas in Public Health were conferred (conjointly with the Royal College of Surgeons of England) upon the following 20 candidates:—

E. B. Allnutt, St. Bart.'s and Royal Army Med. Coll.; U. P. Blackwell, Univ. Coll.; H. Carpenter, Royal Inst. Public Health; U. B. Cox, St. Mary's and Univ. Coll.; R. T. Edwards, St. Bart.'s; D. M. Jones, London and Royal Inst. Public Health; D. G. Karandikar, King's Coll.; H. T. Le Vieux, Guy's; E. K. Macdonald, St. Thomas's and Royal Inst. Public Health; E. O. Morphy, Dublin and Royal Inst. Public Health; W. W. Morrison, Middlesex; G. G. Naoleker, Allahabad and Royal Inst. Public Health; H. A. Osborn, King's Coll.; A. E. Quine, Univ. Coll.; J. L. Rebello, Bombay and Univ. Coll.; E. M. Reece, Univ. Coll.; F. A. Robinson, Durham and Royal Army Med. Coll.; S. K. Shenai, Univ. Coll.; K. Singh, Calcutta and Univ. Coll.; and G. Tate, King's Coll. and Royal Army Med. Coll.

Communications were received from the secretary of the Conjoint Board of Scientific Societies informing the College that the Board has been dissolved; from Mr. H. Wilson Holman offering for the acceptance of the College a memorial to the late Dr. William Musgrave, F.R.S., formerly in St. Leonard's Church, Exeter—the offer was accepted with thanks; from the Committee of the Centenary Celebration of the birth of Pasteur, being an invitation to the ceremonies to be held in Paris, May 24th to 28th, and in Strasbourg, May 31st and June 1st next. Dr. Morley Fletcher was appointed to represent the College.—A letter was received from the treasurer, Sir Dyce Duckworth, expressing his intention of resigning the office of treasurer in July next.—After notable tributes to the work of the Treasurer during his 39 years' tenure, of the office have been made by Dr. Sidney Phillips, Dr. Raymond Crawfurd, the Senior Censor, and Dr. Ormerod, the Registrar, the resignation was received with regret, all the Fellows standing.—Dr. Fawcett was re-elected, on the nomination of the Council, a representative on the Senate of the University of London.—Applications for restoration of the Membership, made in consequence of the recent alteration of the by-laws relating to Members, from Dr. E. A. Gates, Dr. Reginald Pratt, Dr. A. Gregson Williams, Dr. William McCallin, and Dr. M. K. Robertson were received and granted. After some formal business the President dissolved the Comitia.

UNIVERSITY OF LONDON.—At a recent examination for the Diploma in Psychological Medicine the following candidates were successful: Allen C. Hancock and William D. Nicol (with special knowledge of Psychiatry).

A lecture on the Psychology of Epilepsy will be given in the Robert Barnes Hall at the Royal Society of Medicine, 1, Wimpole-street, W., by Dr. E. D. Wiersma, professor of psychiatry and neurology in the University of Groningen, on Thursday, May 24th, at 5.15 P.M. The chair will be taken by Dr. Robert H. Cole. The lecture will be delivered in English. Admission free.

FEDERATION OF MEDICAL AND ALLIED SOCIETIES. The annual dinner of the Federation will be held at the Langham Hotel, Portland-place, London, W. 1, on Wednesday, May 23rd, at 7.15 P.M., when Sir Berkeley Moynihan, the President, will take the chair. Early applications should be made to the secretary, 12, Stratford-place, W. 1, for tickets, the price of which (exclusive of wine) is 12*s.* 6*d.* each.

GRANTOWN HOSPITAL.—In commemoration of her husband, Lady Seafield has given a maternity ward to the Ian Charles Cothall Hospital, Grantown. The ward was formally opened on May 3rd by Colonel D. W. Cameron, of Lochiel. The ward has been built to the west of the main corridor of the hospital, with convenient access from the administrative and kitchen departments. It is planned to accommodate five patients. An X ray room has been constructed by the hospital trustees, and is housed under the same roof. The X ray installation, which was declared open also on May 3rd, was subscribed for as a memorial to the late Mrs. Hutchison.

MEDICAL SCHOLARSHIPS.—Fifteen medical entrance scholarships and exhibitions of an aggregate total value of about £1530, tenable in the Faculty of Medical Sciences of University College and King's College, and in the medical schools of Westminster Hospital, King's College Hospital, University College Hospital, the London Hospital, and the London (Royal Free Hospital) School of Medicine for Women, will be offered for competition on June 26th, 1923. Full particulars and entry forms may be obtained from the secretary of the London Inter-Collegiate Scholarships Board, S. C. Ranner, M.A., the Medical School, King's College Hospital, Denmark Hill, S.E. 5.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC.—The syllabus of the post-graduate course to be held from May 7th–June 29th has now been issued. The course will consist of the following subjects. Lectures on the Pathology of the Nervous System, Mondays, 12 noon; lectures on the Anatomy and Physiology of the Nervous System (if sufficient entries are received); out-patient clinical teaching, Mondays, Tuesdays, Thursdays, Fridays, 2–3.30 P.M., and clinical lectures and demonstrations on these days at 3.30 P.M. Those taking part in the course include Dr. Hinds Howell, Dr. S. A. Kinnier Wilson, Dr. Grainger Stewart, Dr. Risien Russell, Dr. F. M. R. Walshe, Dr. Gordon Holmes, Mr. P. Sargent, Dr. James Taylor, Dr. W. J. Adie, Dr. J. Collier, Mr. Leslie Paton, Dr. P. W. Saunders, Dr. Aldren Turner, Mr. T. H. Just, Dr. L. D. Bailey, Mr. S. Scott, Dr. Russell Reynolds, Mr. D. J. Armour, and Dr. J. Godwin Greenfield. Further information may be obtained from the Dean of Medical School, Dr. C. M. Hinds Howell, at the Hospital, Queen-square, Bloomsbury, London, W.C. 1.

THE IRISH WOMEN'S NATIONAL HEALTH ASSOCIATION.—The annual meeting of this National Health Association was held on April 27th. The Marchioness of Aberdeen and Temair, who presided, said that it was intended during the coming autumn to hold a conference, to which representatives of public bodies and voluntary associations interested in the matter of public health would be invited. The condition of the country had made it somewhat difficult to carry on the work of their branches, but she had good reports from outlying districts, notably from Valentia Island, Waterford, Cork, Limerick, and Clare. Dr. Alice Barry submitted a report on the working of baby clubs and welfare societies in the city of Dublin. She said the mortality rate during the last year amongst children was 116 per 1000, compared with 163 per 1000 a few years ago. Through the babies' clubs they had distributed 12,666 gallons of milk at an average price of 5*d.* per quart. Dr. G. P. H. Sheehan, of the Peamount Sanatorium, in the course of his report, said that the institution had been entirely renovated. The great difficulty they had to contend with was the large number of advanced cases sent to them. At the beginning of last year the number of patients in the sanatorium was 133; during the year 373 were admitted, making a total of 506. Of these 347 were discharged, leaving 159 patients at the end of the year. A resolution was carried calling for a conference between the different organisations engaged in relief work in Ireland, for the purpose of arranging coöperation between them.

DENTAL BOARD OF THE UNITED KINGDOM.—The next session of the Board will take place on Wednesday, May 9th, at 2 P.M., when the Rt. Hon. Francis Dyke Acland, the chairman, will deliver an address, which will be followed by the hearing of disciplinary cases and consideration of other matters.

WHOOPING-COUGH IN MANCHESTER.—During the last few weeks there has been an epidemic of whooping-cough in Manchester, and so far there are no signs of any substantial decrease in the number of fresh cases reported. In the week ending April 21st, there were 187 new cases and 13 deaths, as against 192 new cases and 12 deaths in the previous week from this disease. The number of cases of measles was 111 as against 105. Owing to the prevalence of infectious diseases, visiting of children in the Swinton schools by their relatives and friends is suspended until further notice.

INTERNATIONAL SOCIETY OF THE HISTORY OF MEDICINE.—At a meeting of the permanent committee of this Society, held at Antwerp on April 11th, it was voted to hold the Fourth International Congress of the History of Medicine at Geneva, Switzerland, during the third week of July, 1925. The following officers were elected: President, Dr. Charles Greene Cumston, Geneva. Secretary General, Dr. A. de Peyer, Geneva (Rue General Dufour, 20). President of Honour, Sir D'Arcy Power, London. Vice-Presidents of Honour, Dr. Edward B. Krumbhaar, Philadelphia, U.S.A.; Dr. Tricot-Royer, Antwerp; Dr. J. G. de Lint, Gorinchem, Holland; Dr. Charles Singer, London; the President of the Geneva Medical Society for the year 1925.

THE LATE DR. CAMPBELL MACLEAN.—The death of Dr. John Campbell Maclean, at the age of 77, is a real loss to Swindon, and indeed to Wiltshire. Born in 1846, he took the M.B., C.M.Edin. in 1868, and began practice in Swindon in 1869, when it was almost a village, and developed a practice which eventually grew very large, for he endeared himself to his patients, and, moreover, his diagnosis was accurate and painstaking, and his treatment sound. His practice embraced places as far apart as Cirencester, Marlborough, and Malmesbury. He was surgeon to the Victoria Hospital, Swindon, and found time to keep abreast of the latest methods of treatment. He was an enthusiastic fisherman, was interested in boxing, and told a good story. The general esteem in which he was held was testified to by the numbers who attended his funeral.

ROYAL ACADEMY OF MEDICINE IN IRELAND.—On April 27th, in the hall of the Royal College of Physicians of Ireland, the Royal Academy of Medicine held a special meeting to confer its honorary fellowship on Dr. Ernest Hastings Tweedy, and to hear an oration by Dr. W. R. Fearon in honour of the anniversary of the birth of Pasteur. Sir Arthur Chance, President of the Academy, was in the chair, and among those present were the Presidents of the two Royal Colleges, the Provost of Trinity College, and the Council and Professors of the Royal College of Surgeons. In presenting Dr. Tweedy to the Academy, Dr. T. P. C. Kirkpatrick, general secretary, said that throughout the world Ernest Hastings Tweedy had won both for the Academy and for himself an honoured name. Sir Arthur Chance, in presenting the certificate to Dr. Tweedy, said that in one branch of their art Dublin held foremost place, for in the subject of obstetric medicine her fame was known all over the civilised world. By his original and valuable investigation, his lucid teaching, and his public work Dr. Tweedy had advanced and maintained the reputation of the Dublin school of medicine. An oration dealing with the life-work of Pasteur was then delivered by Dr. Fearon.

NEED FOR MATERNITY HOMES.—Addressing a meeting in Manchester on April 24th, on the Need for Maternity Homes, Dr. Frances Ivens said that though a material reduction had been effected in the rate of infant mortality in this country, there had been no corresponding decrease in the death-rate caused by childbirth, which remained what it was 30 or 40 years ago. Now that midwives were obliged to call in medical assistance, when this was required, the conclusion the speaker arrived at was that the cause was mainly the lack of sufficient ante-natal care of the expectant mother. Women must organise, beginning with the home, and see that everything was right there in the first place. The establishment of special clinics where pregnant women might be advised whether or not they were in a normal condition was advocated. Those suffering from abnormal symptoms should be retained and transferred to special maternity homes. To this end the general reluctance of women to submit to ante-natal examination, and to leave their homes for confinement, should be overcome before everything. The financial difficulties were not insuperable. If women themselves were prepared to organise the problem was as good as solved.

BRITISH CONGRESS OF OBSTETRICS AND GYNÆCOLOGY.—The next Congress will be held in London in 1925, one of the subjects for discussion being the Treatment of Puerperal Blood Infections.

ABERDEEN ROYAL INFIRMARY: RESIGNATION OF SIR HENRY GRAY.—At a meeting of directors of the Aberdeen Royal Infirmary held on April 25th, a letter to the chairman from Sir H. M. W. Gray was read, stating that he had been appointed chief surgeon to the Royal Victoria Hospital, Montreal, and desired to be relieved of his duties at the infirmary. The resignation was accepted with much regret.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL.—The financial position of this institution according to the 106th annual report, which deals with the year 1922, shows some improvement, for an accumulated deficit of £840 has been liquidated with a small balance of £88. The total income was £8823 and the expenditure £7893. The number of in-patients treated during the year was 874, and the average daily number of beds occupied was 36·68 out of a maximum establishment of 42 beds. The average stay was 15·2 days. The new out-patients numbered 15,095 and the casualties 1897. There were 35,479 attendances in all, and upwards of 4000 pairs of spectacles were prescribed.

THE NURSES' CO-OPERATION.—The thirty-second annual report of this institution, dealing with the year 1922, shows that there were 365 nurses on the general staff and 34 asylum-trained nurses who take mental cases only. Taking into consideration the general good health of the community and the inability of many to afford the services of a private nurse, the result of the year's working is regarded as satisfactory. The gross receipts from patients amounted to £51,436, of which the sum of £48,403 has been paid to nurses. The income derived from commission on fees earned by nurses amounted to £3110. The address of the Co-operation is 22, Langham-street, London, W. 1.

LONDON TEMPERANCE HOSPITAL.—The annual report for 1922 contains a statement by the Medical Committee indicating the value of Erlangen deep-therapy for the treatment of cancer and other forms of malignancy. Illustrative cases are given. Among non-malignant conditions which have reacted favourably are fibroid tumour of the uterus, Hodgkin's disease, and keloid, while in lupus the treatment does not seem to have yielded better results than those obtained by ordinary X ray treatment. In the in-patient department 377 patients stayed an average of 19 days each, and one death occurred during the year. In 1921 the number of cases was 212, and the average stay 32 days; 6933 cases were seen in the out-patient department, as compared with 7719 in 1921. The total ordinary income was £7822 and the expenditure £8903.

DENTAL TREATMENT FOR INSURED PERSONS.—At a recent meeting of the Aberdeen Burgh Insurance Committee the following resolution, submitted by the Finance and Medical Benefit Subcommittee, was approved: In view of the fact that the benefits of deposit contributors under the National Insurance Acts are dependent upon the amount standing to their individual credits in the deposit contributors' fund, and that in very many cases there are substantial surpluses available for supplementary purposes, the Aberdeen Burgh Insurance Committee are of opinion that dental and ophthalmic treatment should be added to the benefits at present at the disposal of contributors, and recommend that steps should be taken to obtain legislative authority for the inclusion of such treatment amongst ordinary benefits under the Acts. It was agreed to forward a copy of the resolution to the Scottish Board of Health.

ASSOCIATION OF PUBLIC VACCINATORS.—The annual dinner of this Association was held at the Hotel Cecil on April 27th, with Dr. F. W. Brookes, the retiring President, in the chair. In proposing the toast of the Association, Dr. A. E. Cope referred to the aims of the Association which were still unattained after 25 years' work, inasmuch as the public vaccinators were still in the service of boards of guardians. The dwindling membership, now only a little more than a tenth of that possible, made the further pressing of their claims a matter of difficulty. Dr. Arthur Drury proposed the health of the visitors, and Dr. J. C. McVail and Dr. S. Monckton Copeman replied. Dr. McVail impressed on the members the inadvisability of entering into correspondence with anti-vaccinists in the public press unless armed with all the facts. Small outbreaks of small-pox had in the past and probably would continue to be the decisive factor in inducing people to be vaccinated. Dr. Copeman told several amusing stories of his work at the Ministry of Health in connexion with public vaccination. The health of the President was proposed by Dr. Climson Greenwood, first president of the Association.

Prof. George R. Murray, D.L., M.D., has been appointed to represent the Victoria University of Manchester at the ceremonies connected with the centenary of the birth of Pasteur, which will be held in Paris and in Strasbourg in May.

LONDON (R.F.H.) SCHOOL OF MEDICINE FOR WOMEN.—Princess Mary has consented to present the prizes and certificates to the students on Saturday, June 2nd. Scholarships to the total value of £1010 will be awarded for the session beginning in October next.

SMALL-POX.—No new cases have been reported at Nelson for over a fortnight. In all 64 patients have been treated, and of these 22 have been discharged. At Liverpool two cases of small-pox were discovered on board a liner from a South American port.

NATIONAL COUNCIL FOR MENTAL HYGIENE.—This Council was incorporated under the Companies Acts on April 5th. Subscriptions may be forwarded to the acting secretary, Room 55, Windsor House, Victoria-street, London, S.W. 1.

METROPOLITAN POLICE SURGEONS' ASSOCIATION.—The annual meeting and dinnner of the Association were held at the Holborn Restaurant on April 26th, Dr. A. E. Kennedy, the retiring President, being in the chair. Amongst those present were the Rt. Hon. W. C. Bridgeman, M.P., Home Secretary; Sir Charles Ballance, chief surgeon to the Metropolitan Police; Sir Bernard Spilsbury; Dr. Cassidy, physician to the Metropolitan Police; and Dr. Sanders, M.O.H. for West Ham. An enjoyable musical programme was given after dinner.

PEOPLE'S LEAGUE OF HEALTH.—An oral examination in connexion with the recent series of the Sims Woodhead Constructive Educational Health Lectures, delivered to teachers under the auspices of the People's League of Health, was held on May 2nd at Hamilton House, Mabledon-place, London. A travelling scholarship prize, consisting of a week's visit to a foreign country, with facilities for visiting the health centres, will be awarded to the student obtaining the highest number of marks at this examination, and certificates will be awarded to others. The examiners were Prof. J. G. Adami, Prof. H. R. Kenwood, and Dr. Eric Pritchard.

DONATIONS AND BEQUESTS.—The late Mr. Joseph Howard, J.P., left by will £1000 to the Prince of Wales's General Hospital, Tottenham, and £500 each to the Passmore Edwards Hospital, Wood Green, N., and Dr. Barnardo's Homes.—Under the terms of the will of the late Mr. H. Kaye, of S. Croydon, who shot himself after shooting his wife and child in September last, the hospitals of London will benefit at the discretion of the trustees. The testator left property to the value of some £85,000.—Sir Charles Brown, chairman of the Harris Orphanage, Fulwood, has given £800 to complete the purchase of a house at Lytham as a seaside home for sick and convalescent children of the orphanage.—Mr. Louis Walker, of Bradford, and a former member of the Sanitary Committee, bequeathed £2000 to the Bradford Royal Infirmary and £2000 to the Royal Albert Asylum, Lancaster; £1000 each to the Bradford Institution for the Blind and the Bradford Eye and Ear Hospital: and £500 to the Bradford Children's Hospital.—During last month the St. Mary's Hospitals, Manchester, received legacies and donations amounting to £256, and the Manchester Royal Infirmary £1425.

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NOTES ON CURRENT TOPICS.

Registration of Medical Herbalists.

THE text of the Bill introduced into the House of Commons by Lieut.-Commander KENWORTHY to provide for the registration of medical herbalists has now been issued. Clause 1 deals with the establishment and constitution of a general medical herbalists council composed of nine members appointed by the Privy Council, the Minister of Health, the Board of Education, as well as the President, the Vice-President, and the members of the Council of the National Association of Medical Herbalists of Great Britain, Limited. Each member of the Council other than the first members is to hold office for five years. Clause 2 provides for the keeping of a register of medical herbalists who satisfy certain conditions of admission. Clause 3 provides for the making of rules by the General Medical Herbalists Council, such rules to be subject to the approval of the Minister of Health. Clause 4 deals with the staff and expenses of the Council, and Clause 5 prescribes the conditions under which fees are to be charged for registration. In Clause 6 provision is made for the admission under certain conditions of persons trained outside the United Kingdom. Penalties are imposed for the unauthorised use after the passing of the Act of the name or title of registered medical herbalist, the improper use of certificates of registration and falsification in any matter relating to the register. The Bill does not apply to Scotland or Ireland.

HOUSE OF LORDS.

WEDNESDAY, APRIL 25TH.

Dangerous Drugs Bill.

ON the motion of the Earl of ONSLOW the Dangerous Drugs and Poisons Amendment Bill was read a second time.

HOUSE OF COMMONS.

TUESDAY, APRIL 24TH.

The Housing Bill.

Mr. NEVILLE CHAMBERLAIN (Minister of Health), in moving the second reading of the Government's new Housing Bill, said that the building of houses had not overcome the problem of overcrowding. This state of affairs he admitted constituted a perpetual danger to the physical and moral health of the community. But it was necessary to treat the problem with sense as well as with sensibility. It was necessary to begin the expansion of dwelling-houses upon lines which were capable of growth and development, and as far as possible artificial devices should be avoided. Private enterprise in housing was beginning to function once more. He was rather surprised to find how many houses had been built without any assistance from the State or local authorities. During the past six months upwards of 12,000 houses had been completed, and another 16,000 were in course of erection. The clause on slum areas in the Bill was not the last word on the subject, but it would enable them to get a considerable amount of work done in the next few years. The Government contemplated that the annual loss on houses built under the Bill would be approximately double the equivalent of the £6 subsidy which the State was providing, and the extra loss would have to be borne by the local authorities out of the rates. They were reversing the Addison plan in the interests of economy. The dimensions of the subsidy houses would be 840 superficial feet.

Mr. WHEATLEY, on behalf of the Labour party, moved a resolution to the effect "That this House cannot assent to the second reading of a Bill which is inadequate to deal with the present housing shortage; ignores the difficulty of land purchase and transfer; fails to provide the means of securing a sufficient supply of building materials at reasonable prices; throws an excessive financial burden upon local authorities, and interferes unnecessarily with their administrative powers; fails to reduce the burden of interest imposed upon dwelling houses by the present financial system; and provides only for an unreasonably small type of house." The proposed houses, he said, were too small, miserably small. They would never be homes; they would soon be slums.

Mr. R. J. DAVIES seconded the motion for rejection.

On the debate being resumed on the following day, Lieut.-Colonel FREMANTLE said he would like to make a few remarks from the point of view of one who had essentially studied the question of housing for 20 years, for 15 of them as a medical officer of health, and more latterly in an administrative capacity in connexion with the London County Council. If they did not force the pace he believed that they would get a good output of houses under the new scheme. As a medical man who was most anxious to help to prevent the evils arising from bad housing and anxious to remedy them so far as possible, he made an appeal that all the available machinery should be utilised, and he asked Members on both sides of the House to stimulate all the different circles in the community on which they had any influence, and to coöperate in seeing that both private enterprise and public machinery were employed in the solution of the housing problem during the next few years.

On a division the amendment was defeated and the Bill was read a second time by 340 votes to 140.

WEDNESDAY, APRIL 25TH.

Women Physicians as Panel Doctors.

Mr. BURGESS asked the Minister of Health how many women physicians were at present acting as panel doctors.—Mr. NEVILLE CHAMBERLAIN replied: The total number of women medical practitioners engaged in insurance work in England and Wales is 215.

Cost of the Board of Control.

Mr. AMMON asked the Minister of Health whether he would furnish a return of the cost of the Board of Control for the year 1922, including salaries, expenditure of office staff, and travelling expenses.—Mr. NEVILLE CHAMBERLAIN replied: The total gross cost of the Board of Control for the financial year 1922–23 was approximately £470,236, less appropriations in aid (fees for licences, &c.) £7756. The gross cost includes grants in aid to local authorities and voluntary institutions £408,791, cost of State institutions for mental defectives £26,795, salaries and expenses, &c., of head office staff £34,650.

Leprosy in Great Britain.

Col. Sir CHARLES YATE asked the Minister of Health whether, considering the marked improvement in the condition of lepers that had been obtained as the result of treatment and research in the leper asylums in India, he would consider the question of taking steps to ascertain how many cases of leprosy there were in this country and what success had attended their remedial treatment.—Mr. NEVILLE CHAMBERLAIN replied: The treatment and research referred to are being carefully studied in my department, and I understand that they will be fully discussed at the forthcoming International Conference on Leprosy at Strasbourg, at which this country will be represented by one of the medical officers of the Ministry. I am advised that information is already available as to the approximate number of cases of leprosy in this country and that the treatment referred to in the first part of the question is being used in some of these cases.

THURSDAY, APRIL 26TH.

Codification of Law Relating to Coroners.

Mr. WARNE asked the Secretary of State for the Home Department if he was aware that the Departmental Committee on Coroners' Law reported in 1909 that the present law of death certification offered every opportunity for premature burial and every facility for the concealment of crime, and that a great deal of the law relating to coroners dated from the thirteenth century and was not well suited to the changed conditions of modern life; and, in the presence of these statements and the fact that laws relating to coroners were comprised in about 30 Acts of Parliament, what steps was he taking to codify the law on this important subject.—Mr. LOCKER-LAMPSON replied: A Bill to consolidate and amend the law relating to coroners is in course of preparation, but my right hon. friend cannot say when it will be possible to introduce it.

MONDAY, APRIL 30TH.

Appointments in Colonial Medical Service.

Lieut.-Colonel FREMANTLE asked the Under-Secretary of State for the Colonies which colonies, and how many individual medical appointments, were affected by the discontinuance of recruitment in this country in the case of certain medical posts at low salaries; how these appointments were now filled by the several colonies; and what were the medical qualifications and nationality of the successful candidates for such posts.—Mr. ORMSBY-GORE replied: The question whether a medical appointment in the West Indies should be filled from this country is frequently decided only when a vacancy occurs, and accordingly it is not possible to state definitely how many individual appointments are affected, but the number is probably between a dozen and a score. The appointments concerned are some of those in the Windward, Leeward, Bahamas, Turks, Caicos, and Cayman Islands. Most of them are filled by local West Indian candidates of British nationality possessing qualifications obtained in the United Kingdom or Canada. It appears that there are only two medical men in the islands in question whose qualifications are foreign.

Colonel FREMANTLE asked if it was not the case that recent appointments had been given to men with American degrees because the conditions of service were not such as to attract those of British nationality?—Mr. ORMSBY-GORE said he believed that these two exceptions with American degrees were British West Indians.

Colonel FREMANTLE asked the Under-Secretary of State for the Colonies whether the Secretary of State for the Colonies was still, in the words of the Wood Report, always hampered in recruitment for colonial medical appointments carrying rights of private practice by the absence of sufficient data as to the value of such practice; if so, what steps had been taken by his department to give effect to the suggestions of his predecessor in office for removing this defect; and with what result.—Mr. ORMSBY-GORE replied: My hon. and gallant friend will no doubt appreciate that the value of a private practice must vary in accordance with the individual capacity of its holder, and accordingly such information as the Colonial Governments are able to supply can only be of limited utility as a guide to the value of the appointment. The passage in the report dealing with this point was referred to the Colonial Governments concerned for their observations and no specific reply has yet been received. I may say, however, that there has been no difficulty in the case of any appointment to these Colonies since the date of the report.

Colonel FREMANTLE: Is it a fact that despite these uncertainties to which the Under-Secretary has referred a definite idea of the enormous advantages of the private practice is given to those who are applying for these appointments?—Mr. ORMSBY-GORE: I believe the candidate is told in round figures what the private practice brought in to the previous occupant of the post.

TUESDAY, MAY 1ST.

Retirement of R.A.M.C. Officers.

Colonel Sir ARTHUR HOLBROOK asked the Under-Secretary for War whether, seeing the slowness of promotion now existing, he would explain why lieutenant-colonels of the Royal Army Medical Corps and the Royal Army Veterinary Corps were not obliged to retire after four years' service in that rank, as was the case in the infantry, artillery, and other branches of the army.—Lieut.-Colonel GUINNESS replied: No fair comparison can be made with the combatant branches, where conditions are different. The combatant officers in question are not retired, and the fact that they go on half pay does not deprive them as a class of adequate opportunities of further employment. No opportunities on a similar scale would be available for the departmental branches.

Women Medical Inspectors of Prisons.

Mr. BRIANT asked the Secretary for the Home Department if there were any women inspectors of prisons, women medical inspectors of prisons, and women commissioners of prisons; and, in view of the very large number of women in various penal institutions, if he would make appointments of persons of their own sex to these positions.—Mr. BRIDGEMAN replied: There are no women holding the appointments referred to. A woman has been appointed Governor of Aylesbury Borstal Institution, many women magistrates serve on the visiting committees of local prisons, and many women act as unofficial visitors to the women, 1078 in number, in prisons and similar institutions.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, May 7th.

TROPICAL DISEASES AND PARASITOLOGY: at 8.30 P.M.
Annual General Meeting:
Election of Officers and Council for 1923–24.
Paper:
Lieut.-Colonel A. E. Hamerton: The Establishment of an Anti-rabic Institute in the Tropics.

Tuesday, May 8th.

PSYCHIATRY: at 5.30 P.M.
Annual General Meeting:
Election of Officers and Council for 1923–24.

Wednesday, May 9th.

SURGERY: SUBSECTION OF PROCTOLOGY: at 5.30 P.M.
Annual General Meeting:
Election of Officers and Council for 1923–24.
Discussion on Ulcerative Colitis.
The following have promised to take part in the Discussion: Sir Humphry Rolleston, Sir Thomas Horder, Mr. W. Ernest Miles, Mr. P. Lockhart-Mummery, Prof. L. S. Dudgeon, Dr. W. E. Carnegie Dickson, and Dr. A. F. Hurst.
Members of the Subsection and others desiring to speak are requested to communicate with the Hon. Secretary, Mr. Percival Cole, 15, Harley-street, W. 1.
MEDICINE, SURGERY, PATHOLOGY.
Members of these Sections are cordially invited to attend and to take part in the above Discussion.
The Annual Dinner of the Subsection will be held on Wednesday, May 9th, at Oddenino's Restaurant, at 8 for 8.15 P.M. The price of the Dinner is 12*s.* 6*d.* (exclusive of wine) payable at the table.
Members intending to be present are requested to notify Mr. Percival Cole, Hon. Secretary.

Thursday, May 10th.

NEUROLOGY: at 5 P.M.
Annual General Meeting:
Election of Officers and Council for 1923–24.
To be followed by a *Clinical Meeting.*
The Annual Dinner of the Section will be held at the Langham Hotel, Portland-place, W., at 7.30 P.M.

Friday, May 11th.

CLINICAL: at 5.30 P.M.
Annual General Meeting.
Election of Officers and Council for 1923–24.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.
WEDNESDAY, May 9th.—5 P.M., Prof. Geoffrey Keynes: Hunterian Lecture on Chronic Mastitis.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.
POST-GRADUATE COURSE: MAY–JUNE, 1923.
CLINICAL LECTURES AND DEMONSTRATIONS.
MONDAY, May 7th.—2 P.M., Out-patient Clinic: Dr. Hinds Howell. 3.30 P.M., The Syndrome of the Corpus Striatum: Dr. Kinnier Wilson.
TUESDAY, May 8th.—2 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Cerebellar Disease: Dr. Risien Russell.
THURSDAY, May 10th.—2 P.M., Out-patient Clinic: Dr. Kinnier Wilson. 3.30 P.M., Disorders of Sensation and Their Significance: Dr. Walshe.
FRIDAY, May 11th.—2 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Treatment of Cerebral Tumour: Mr. Sargent.
COURSE OF LECTURES ON NEURO-PATHOLOGY.
MONDAY, May 7th.—12 noon, Cerebro-spinal Fluid: Dr. J. Godwin Greenfield.
A COURSE of 12 LECTURES on the ANATOMY AND PHYSIOLOGY OF THE NERVOUS SYSTEM will be given at 12 noon on TUESDAYS and FRIDAYS if there are sufficient entries for it.
Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 A.M., or at such other times as may be announced.
The fee for the whole Course is £12 12*s.*, including Anatomy and Physiology; but these Lectures may be taken separately for a fee of £4 4*s.* The fee for the Course without Anatomy and Physiology Lectures is £10 10*s.* Special arrangements as to fees will be made for those unable to take the whole Course. Fees should be paid to the Secretary of the Hospital at the office on entering for the Course.
C. M. HINDS HOWELL, Dean of Medical School.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.
MONDAY, May 7th.—10 A.M., Mr. MacDonald: Genito-Urinary Operations. 12 noon, Mr. Simmonds: Applied Anatomy. 3 P.M., Mr. Simson: Diseases of Women.
TUESDAY.—10.30 A.M., Dr. Paterson: Demonstration of Cases (Medical Wards). 2 P.M., Mr. Banks-Davis: Diseases of Throat, Nose, and Ear. 2.30 P.M., Mr. Tyrrell Gray: Surgical Wards.
WEDNESDAY.—11 A.M., Mr. Simson: Gynæcological Demonstration. 12.15 P.M., Dr. Burnford: Medical Pathology. 3 P.M., Dr. Pernet: Skin Department.
THURSDAY.—12 noon, Mr. Simmonds: Demonstration of Fractures. 2 P.M., Mr. Bishop Harman: Eye Department. 2 P.M., Mr. MacDonald: Genito-Urinary Department.
FRIDAY.—10 A.M., Mr. Dudley Buxton: Dental Department. 11 A.M., Dr. MacDougal: Electrical Department. 2 P.M., Dr. Burrell: Medical Out-patients.
SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Nose, Throat, and Ear.
Daily, 10 A.M. to 6 P.M., Saturdays 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
Demonstration of Clinical Cases at 3.30 P.M.
MONDAY, May 7th.—Mr. J. Bright Banister: Gynæcological.
TUESDAY, Dr. J. Metcalfe: Radiological.
WEDNESDAY.—Mr. C. H. Hayton: Throat and Nose.
THURSDAY.—Dr. Yealland: Medical.
FRIDAY.—Mr. E. Gillespie: Surgical.

LONDON HOSPITAL MEDICAL COLLEGE, Mile End, E.
TUESDAY, May 8th.—5.15 P.M., Dr. Millais Culpin: The Unconscious.
FRIDAY.—5.15 P.M.: The Dynamics of the Unconscious.

INSTITUTE OF PATHOLOGY AND RESEARCH, St. Mary's Hospital, Paddington, W.
THURSDAY, May 10th.—4.30 P.M., Dr. H. H. Dale: The Physiology of Insulin.

LONDON SCHOOL OF MEDICINE FOR WOMEN, 8, Hunter-street, W.
TUESDAY, May 8th.—5 P.M., Prof. A. L. McIlroy: Obstruction to Labour.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland-street, Marylebone, W. 1.
THURSDAY, May 10th.—5.30 P.M., Dr. F. W. Price: The Clinical Investigation of Tachycardia.

LONDON LOCK HOSPITAL, 91, Dean-street, W. 1.
TUESDAY, May 8th.—2.30 P.M., Mr. J. E. R. McDonagh: Treatment of Gonorrhœa and its Complications.
WEDNESDAY.—5 P.M., Mr. F. Juler: The Commoner External Venereal Diseases of the Eye.
THURSDAY.—4.30 P.M., Mr. Lawrence Abel: Treatment of Acute Gonorrhœa in the Male.
FRIDAY.—4 P.M., Mr. Johnston Abraham: Treatment of Gonorrhœa in the Female.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.
THURSDAY, May 10th.—5 P.M., Dr. C. H. Roberts: The Badly Flexed Head.

INFANTS HOSPITAL, Vincent-square, S.W. 1.
MONDAY, May 7th.—6 P.M., Dr. Eric Pritchard: Modification of Milk.
THURSDAY.—6 P.M., Modification of Dried Milk.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE LECTURES.
TUESDAY, May 8th.—4.15 P.M., Dr. G. R. Murray: Organotherapy.

SALFORD ROYAL HOSPITAL.
THURSDAY, May 10th.—4.30 P.M., Dr. Gibson: Psoriasis.

UNIVERSITY OF BRISTOL POST-GRADUATE DEMONSTRATIONS (in the Medical Theatre).
THURSDAY, May 10th.—3.30 P.M., Dr. Carey Coombs: Present-day Methods of Examining Cases of Cardio-Vascular Disease.
FRIDAY (at Dorchester).—Mr. T. Carwardine: Diagnosis and Treatment of Gall-Bladder Diseases.

Appointments.

CALEY, F. G., M.A., B.M., B.C. Camb., D.P.H. Oxf., M.R.C.S., L.R.C.P. Lond., has been appointed Medical Officer of Health for the Metropolitan Borough of Wandsworth.

GARTON, W., L.R.C.P. Lond., M.R.C.S., D.M.R.E. Camb., Honorary Radiologist, St. Bartholomew's Hospital, Rochester.

GOLLA, F. L., M.B., B.Ch. Oxf., F.R.C.P., Pathologist to the London County Mental Hospitals.

REED HILL, K., M.D., B.S. Lond., Resident Surgical Officer to the Kent County Ophthalmic Hospital, Maidstone.

WHITFIELD, W., L.R.C.P. & S. Edin., L.F.P.S. Glasg., Certifying Surgeon under the Factory and Workshop Acts for the Walton-on-Naze District of the County of Essex.

Leicester Royal Infirmary: RIDLEY, N. C., M.B. Lond., F.R.C.S. Eng., Consulting Ophthalmic Surgeon; BARTON, M. H., F.R.C.S. Edin., Hon. Ophthalmic Surgeon.

Manchester Royal Infirmary: SUTHERLAND, D. MCKAY, M.D., Ch.B. Manch., F.R.C.S. Eng., Resident Surgical Officer; BUCKLEY, G. H., M.B., Ch.B. Manch., Assistant Resident Surgical Officer; CUBITT, BARBARA, M.B., B.S. Lond., Resident Medical Officer (Central Branch); and HICKSON, S. K., M.B., Ch.B. Manch., Assistant Registrar, Electro-Cardiograph Department.

St. Mary's Hospitals, Manchester: KILROE, J. S., M.B., Ch.B. Manch., BEGG, E. C., M.B., Ch.B. Manch., and HULME, J. W., M.R.C.S., L.R.C.P. Lond., House Surgeons at the Whitworth-street West Hospital.

Vacancies.

For further information refer to the advertisement columns.

Bedford County Hospital.—H.S. £175.
Bethlem Royal Hospital, Lambeth-road, S.E.—Consulting Radiologist. 100 guineas.
Birkenhead Borough Hospital.—Jun. H.S. £150.
Bradford Royal Eye and Ear Hospital.—Hon. Ophth. S.
Brighton County Borough Sanatorium.—R.M.O. £300.
Cambridge, Addenbrooke's Hospital.—H.S. £130.
Cornwall County Council.—Deputy Tub. O. £50.
Ebbw Vale Education Committee.—Ophth. S. 7 guineas per session.
Gloucestershire Royal Infirmary.—Hon. Radiologist. Asst. S.
Great Yarmouth Hospital.—H.S. £150.
Infants' Hospital, Vincent-square, Westminster.—H.P.
King Edward VII. Sanatorium, Midhurst, Sussex.—Second Asst. M.O. £250.
London County Mental Hospital Service.—Seventh Asst. M.O. £440.
London Hospital, Whitechapel, E.—Med. Regs. Each £365.
Macclesfield, Cheshire County Mental Hospital, Parkside.—Locum Tenens A.M.O. £10 10s. weekly.
Maidstone, Kent County Ophthalmic Hospital.—H.S. £250.
Manchester, Ancoats Hospital.—Surg. Reg. £100.
Manchester Ear Hospital, All Saints.—Pathologist. £25.
Middlesex Hospital, W.—Radium Officer. £300.
Mount Vernon Hospital for Tuberculosis, &c.—Surgeon Laryngologist.
National Hospital for the Paralysed and Epileptic, Queen-square, W.C.—Senior H.P. £150.
North Ronaldshay, Orkney.—Med. Pract. £400.
Pendleton, Infectious Diseases Hospital, Ladywell Sanatorium.—Asst. R.M.O. £320 14s.
Royal Chest Hospital, City-road, E.C.—P.
Royal Northern Hospital, Holloway, N.—H.S.'s. £100. Cas. O. £150.
St. Mary Abbot's Hospital, Marloes-road, Kensington, W.—Locum Tenens. 5 guineas weekly.
Salford Union Infirmary, Hope, Pendleton, near Manchester.—First Asst. Res. M.O. £400.
Sheffield Royal Hospital.—Asst. Cas. O. £150.
Sheffield Royal Infirmary.—H.S. for Ear, Nose, and Throat. £150.
South Mimms, Barnet, Clare Hall Sanatorium.—Asst. M.O. £350.
South Wales Sanatorium, near Talgarth, Breconshire.—Second Asst. Res. M.O. £200.
Wakefield, West Riding Asylum.—Jun. Asst. M.O. £400.
Western Dispensary, 38, Rochester Row, Westminster, S.W.—Vacancy on Medical Staff.
West London Hospital, Hammersmith-road, W.—Hon. Med. Radiologist.
Willesden General Hospital, Harlesden-road, N.W.—Hon. P.
Wolverhampton and Staffordshire General Hospital.—Res. Cas. S. £250.

The Chief Inspector of Factories, Home Office, London, S.W., announces a vacant appointment at Burton Latimer (Northants).

Births, Marriages, and Deaths.

BIRTHS.

HANDFIELD-JONES.—On April 29th, at Ashworth-mansions, W., the wife of R. M. Handfield-Jones, M.C., M.S., F.R.C.S., of a son.

WOODWARK.—On April 27th, at 4, Harley-street, W., to Hilda, wife of A. S. Woodwark, C.M.G., C.B.E., M.D., F.R.C.P.—a son.

YEOMAN.—On April 29th, at 10, Duchy-road, Harrogate, to Dr. and Mrs. W. Yeoman—a son.

MARRIAGES.

BANKS—HOGG.—On April 25th, at St. George's, Hanover-square, Harry Banks, F.R.C.S., to Jessie, youngest daughter of the late Captain Hogg and Mrs. Hogg, Crouch-hill, London.

BOYCE—O'KINEALY.—On April 18th, at the British Consulate, Monte Carlo, Charles Boyce, M.D., to Winifred Mary O'Kinealy (widow of Capt. James O'Kinealy, R.A.), of Compton Cottage, Canford Cliffs, Dorset.

HILLMAN—MILLER.—On April 23rd, at Christ Church, Lancaster Gate, Oscar Stanley Hillman, M.B., F.R.C.S., to Ethel Florence Miller.

MACDONALD—PAUL.—On April 18th, at St. Luke's, Holloway, Donald Macdonald, M.A., M.B., to Emily Lever, only daughter of Mr. and Mrs. Alex. Paul, late of Bebington, Cheshire.

MULLIGAN—TAYLOR.—On April 25th, at Davos, Michael John Mulligan, M.B., D.P.H., to Lilian Ellen Veronica, only daughter of the late Mr. and Mrs. Charles Taylor, of Heswall, Cheshire.

DEATHS.

KILLICK.—On April 27th, at his residence, Spring Bank-place, Bradford, Charles Killick, M.D., F.R.C.S., aged 48.

MURPHY.—On April 27th, at Bentinck-terrace, London, N.W., of influenza and bronchitis, Lieut.-Colonel Sir Shirley Forster Murphy, K.B.E., F.R.C.S., aged 74 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

THE PREVENTION OF CONGENITAL SYPHILIS.*

BY J. H. SEQUEIRA, M.D., F.R.C.P. LOND., F.R.C.S. ENG.,

PHYSICIAN TO THE SKIN DEPARTMENT AND LECTURER ON DERMATOLOGY AT THE LONDON HOSPITAL, ETC.

THE problem of the prevention of congenital syphilis is one of the most important in medicine, and I think we may reasonably venture to congratulate ourselves on the progress made towards its solution in recent years, and also to hope for material improvement in the near future. By congenital syphilis I mean infection of the embryo by the *Spirochæta pallida* up to and including birth. I prefer the term "congenital syphilis" to "hereditary syphilis" or "heredo-syphilis." Heredity implies some quality of the germ or sperm-plasm which becomes manifest as the embryo develops. While I do not deny that some such influence may result from spirochætal infection of one or both parents, there is no evidence that the conditions now under consideration are produced except by the fortuitous introduction of living spirochætes into the embryo while in utero or in its passage through the genital canal during parturition.

Unlikelihood of Paternal Infection.

You will realise at once that I look upon congenital syphilis as due to maternal infection. I am aware that some high authorities, particularly those of a past generation, have maintained that paternal infection of the embryo without infection of the mother is possible, but all recent investigation tends to show that if such infection occurs it is so rare as to be a negligible factor in the problem presented to us. My reasons for dismissing "paternal syphilis" from the purview of this discussion are :—

1. The *Spirochæta pallida* in the spirillar stage in which we recognise it clinically is too large to be contained in the head of the spermatozoon.

2. Even if there be a spore stage of the organism it is difficult to believe that it could be contained in the sperm-cell without being lethal.

3. The blood of the mothers of definitely syphilitic children, examined soon after the birth and up to the sixth month, gives a positive reaction in 95 per cent., a percentage which closely approximates to that found in acquired syphilis in the secondary or generalised stage.

4. The fact that a woman may have syphilitic children by a first husband, and apparently healthy children by a second, is of no value as evidence of paternal syphilis in the absence of serological tests of mother and infants. We have had several instances of children with positive Wassermann reaction (W.R.) alternating with children with negative W.R. of the same parents.

Date of Infection.

The results of infection by *Spirochæta pallida* vary with the date at which the organism invades the embryo. When the embryo is attacked early it will early succumb. Syphilis is the cause of from 15 to 20 per cent. of all miscarriages and stillbirths. The later the infection the more chance the embryo has of surviving. On rare occasions a living infant may be born with evidence of congenital syphilis, but it is a remarkable fact that in the large majority of instances the child at birth appears to be quite healthy, and that the clinical manifestations of disease do not appear for from three weeks to two months, and, rarely, later. In a few instances a bullous eruption may appear a few days after birth, and in such cases the infant rarely survives. Late manifestation of congenital syphilis affects the eyes, ears, bones, viscera, and, occasionally, the skin and adjacent mucous membranes, and the nervous system. That infection may take place during parturition has long been held; Dr. Eardley Holland has seen a case of primary chancre in an abrasion produced by forceps, and Lomholt has published two cases occurring in maternity clinics in Denmark. How the fœtus in such cases escaped infection while in utero affords an interesting problem in immunology.

Preventive Measures.

The prevention of congenital syphilis resolves itself into two parts—(1) prevention of infection of the mother, and (2) adequate treatment of the syphilised woman before or during pregnancy.

Prevention of Infection of the Mother.—1. Any measures, moral or medical, which prevent the spread of syphilitic infection must of necessity diminish the amount of congenital syphilis. Those of us with a somewhat lengthy experience must have recognised the diminution of congenital syphilis in the clinics. This is not by any means due to a diminution in the amount of venereal infection generally, but to the fact that syphilis is recognised earlier and better treated. Moreover, in the more highly-educated classes the proportion of syphilis among married women is very low. With the spread of knowledge of the dire results of this infection men will not marry unless they are assured that there is no danger of transmitting the disease to a wife or offspring. Unfortunately, cases do occur, but in many of them the man has believed himself free from infection at the time of marriage, and in some instances his medical adviser has been to blame. In my experience it is quite common for the husband's infection to occur at a later date from post-marital irregular sexual intercourse. Such irregularities are not uncommon in all classes, often during the later months of the wife's pregnancy or during her lying-in. Hence, we find a healthy child or children, followed by a series of miscarriages or still-births, or the birth of infected living children. It is obvious that a man who has thus contracted disease must be treated at once and adequately, and must abstain from sexual relations until pronounced free from infection.

2. *Adequate Treatment of the Syphilised Woman Before or During Pregnancy.*—Here, at the outset, we are met with a great difficulty. Many women suffer from syphilis without any knowledge of the fact. The primary lesion on the genitalia is often inconspicuous and causes little or no discomfort. It may be on the cervix uteri and cause no clinical symptoms. There may be a complete absence of secondary manifestations, and yet she may have a series of miscarriages or stillbirths, or bear living children which show sooner or later evidence of grave spirochætal infection.

I do not purpose to enter into any discussion of this remarkable absence of evidence of disease, but I would once again point out that the blood of such a woman will in 19 cases out of 20 give a positive W.R. We can prevent a great deal of congenital syphilis by examining the blood of every woman who has had a miscarriage or stillbirth, and if the W.R. prove positive by carrying out anti-syphilitic treatment which should be continued during subsequent pregnancy. At the same time the husband should be induced to come up for a blood examination and in his case also adequate treatment should be insisted upon. We have had most gratifying results in a large number of cases dealt with in this way, and when the treatment has been properly carried out later pregnancies have resulted in the birth of healthy, non-syphilitic infants.

A further development on these lines has been the routine examination by the W.R. of all women attending the ante-natal clinic. But here I have to introduce a note of warning—of 700 primigravidæ attending the London Hospital Ante-natal Clinic, 19 were found to give a positive W.R. In some of these there was other evidence of syphilis, and wherever possible the husband was induced to have his blood also examined. But the number is too small to be of practical value. We have, however, met with cases in which we have no doubt there was no syphilis. In one instance in particular the woman died and a very complete autopsy showed no evidence of syphilis in her or in the fœtus. The father was serologically and clinically free from disease. The fact that occasionally a normal pregnant woman's blood may give a strongly positive W.R. is established. So far our figures are not large enough to make a strong statement of the proportion, but I believe it is not more than 1 per cent. This is confirmed by the experience of Fordyce and Rosen, who state that from 25 to 35 per cent. of the patients referred to the Vanderbilt Clinic by maternity hospitals because of a strongly positive reaction with cholesterinised antigen alone give a negative reaction with all methods when they report several weeks after delivery, and remain negative in repeated examinations. We have, therefore, decided that it will be wise not to give anti-syphilitic treatment to pregnant women who give a positive W.R. without any history of miscarriage, still-births, or syphilitic children, if there is no other evidence pointing to syphilitic infection. Such patients, of course, must be carefully watched during their pregnancy and the blood test should be repeated, and, wherever possible, the blood of the husband should be examined.

Conclusions.

Congenital syphilis can be prevented :—

1. By early and complete treatment of every case of acquired syphilis both in the male and female.

2. Marriage should be forbidden until a condition of non-infectivity has been attained. From experience I am of opinion that this obtains if a person has had adequate antisyphilitic treatment, and is free from all clinical evidence, and whose blood has been negative for two years. Some observers would also include an examination of the

* Abstract of a lecture delivered at the Royal Institute of Public Health, March 14th, 1923.

cerebro-spinal fluid. There remain some cases where the patient has had antisyphilitic treatment over a long period and the blood persistently gives a positive W.R. In such cases there can be no certainty, and the risk, though possibly slight, must be explained to the patient.

3. It would be advisable to obtain a W.R. in every prospective mother, bearing in mind the special points mentioned above.

4. Every mother who has a positive W.R. and whose clinical history, or history of miscarriages, stillbirths, or of syphilitic children shows that she is syphilitic, should receive antisyphilitic treatment during each subsequent pregnancy. If the treatment is thorough such pregnancy will certainly result in the birth of a healthy child. I specially lay stress on *each* subsequent pregnancy, as I have known instances where a healthy child has been born as the result of treatment during one pregnancy, but that subsequently an infected child has been born owing to reliance being placed on the previous treatment.

5. Every infant born to a syphilitic parent should be examined by the W.R. at regular intervals up to the second year.

6. With the view of preventing the development of late congenital syphilis we are in the habit of examining as far as possible all the children of a syphilitic parent by the W.R., and have thus been able to discover a large number of cases in which disease has been latent and unrecognised.

PUBLIC HEALTH IN BOMBAY.[1]

THE population of Bombay at the census of 1911 numbered 979,445; according to the provisional figures for the 1921 census, taken on March 18th, the population was 1,172,953; in the health officer's report the statistical ratios had necessarily to be calculated on the basis of the 1911 enumeration, and these ratios must accordingly be understood as overstatements of ratios of births, deaths, and disease prevalence. The birth-rate in 1920 was 20·14 per 1000, as compared with 21·16 in 1919, and 21·51 in the quinquennium (1915–19); but on account of the large number of births unregistered (as shown by infants vaccinated), Dr. J. E. Sandilands, executive health officer, the author of the report for this year, considers that the correct rate should be 27·53 per 1000. As usual there were wide variations among the different races that compose the population of the city; for Hindus, who form the majority (684,502) the birth-rate was 19·48; varying from 4·98 among Jains and 8·81 among Brahmins to 58·74 in those of "Low Caste," and 100·08 among the small community of Lingaits. For Mussulmans and Negro Africans the ratio was practically the same (19·77). For Parsees it was 26·27, for Anglo-Indians 26·74, and for Indian Christians 23·64; for "Europeans" 14·04. All these birth-rates are lower than in the previous year, except for Lingaits, Parsees, Jews, and Europeans, which show a slight increase, and that for Anglo-Indians, which is exactly the same. A comparison of the ratios in the different sections of the city shows remarkable variations; while in Fort South and Market sections the ratios were only 9·24 and 7·58 per 1000, in Upper Colaba and Byculla they were 47·52 and 59·68. Dr. Sandilands, however, states that "these ratios cannot be of much value for purposes of comparison, owing to the uneven distribution of single and married women of fertile age, which accounts in some measure for the remarkable differences in the rates recorded." The variation is, however, certainly remarkable.

The General Death-rate.

The general death-rate was 46·80 per 1000; in the previous year it had been 70·04; in 1918, 59·61; and in the decennium 1910–19, 39·56; of the whole population 79 per cent. live in one-room tenements. Here, again, the ratios varied enormously; in the section called "Harbour, Docks, Railway, and Homeless" (with a population of 44,979) the mortality was 3·35 per 1000, practically the same as in the preceding quinquennium (3·86), while in Upper Colaba (population 1557) it was 84·13 (and 82·20 in the quinquennium); this ratio may possibly be explained by deaths in hospitals in this section, which should, of course, be debited to the dwelling of the patient, if the address is known. The infantile mortality (552 per 1000 live births) was less than that of 1919 (653), but higher than the decennial average (439); of the total 10,896 deaths under one year, 3873 were due to respiratory diseases, and 3549 to congenital debility and premature birth. A number of infants who die in the city are either not born there or not registered; for this reason the ratios in the case of Jains and Brahmins (3862 and 1014) are absurd, but "unfortunately other figures in the table, which are reliable, tend to show that the actual as well as the apparent infantile death-rate in Bombay must be one of the highest in the world." There are few poor among the Parsees, and their standard of education is high, yet the infantile mortality was 199 per 1000 births. Among Europeans the ratio was 311. (For the 96 great towns in England and Wales, including London, the infantile mortality in 1920 was 85 per 1000 births, in the metropolis alone it was 75.) After making all allowances, Dr. Sandilands is of opinion that the ratio cannot be estimated at less than 400 per 1000 births. Naturally there is great variation in the incidence in the various sections in the city; thus, in Fort South the ratio was only 250 and in Walkeshwar 335·6, while in Byculla it was 725·7, in Mandvi 990·5, and in Market 995·6; the actual numbers in the last two sections were 344 and 228 respectively, but it is stated that the high ratios "must be taken as in some considerable measure due to the non-registration of births in the sections." Of the whole number of births 75·8 per cent. occurred in "families living alone in a single room or sharing it with others," and among these the mortality was 631·1 per 1000 births; this, however, is a considerable improvement on the 1919 ratio, which had been 831·3 per 1000 births. Much has been done to reduce this excessive mortality by house visiting to find out prospective mothers and give advice, attendance on confinements, and provision of necessaries and comforts; maternity homes, infant milk depôts, and infant welfare centres have been established. As many as 23,365 visits were paid by municipal nurses and 1252 confinements were attended by them.

Epidemic Diseases.

In regard to epidemic diseases, it is noteworthy that 1920 was the first year since 1896 during which there was no epidemic of *plague*; there were 347 attacks and 282 deaths, the mortality being 0·28 per 1000, as compared with 1·25 for the preceding quinquennium. In Middle and Lower Colaba section there were 30 fatal cases (1·52 per 1000, against 4·37 in the quinquennium); in no other section did the mortality exceed 0·60 per 1000 (except Parel, 0·63), and in Upper Colaba and Chowpati there were no fatal cases at all. Inoculation, rat destruction, evacuation, and disinfection were carried out systematically and with success. *Small-pox* caused 294 deaths, or 0·30 per 1000, compared with 0·79 in 1919 and 0·70 in the quinquennium; in Girgaum and Mahalakshmi sections the ratios were 0·87 and 0·76; in Upper Colaba, First Nagpada, and Sewri there was not a single death. Of the 48 infants who died from this disease, 40 were not vaccinated; the vaccinal condition of the remaining eight could not be ascertained. Of the 19,731 infants whose births were registered, only 57·64 per cent. were vaccinated. Of the 18,008 Mahomedan pilgrims who embarked for the Mecca pilgrimage, 16,909 were vaccinated before leaving Bombay. In 1919 there had been 9658 cases of *cholera* in the city, of which 8455 were fatal, giving a death-rate of 8·63 per 1000; the sections most affected had been Parel and Sewri, with ratios of 22·27 and 20·29 respectively. In 1920 the cases numbered only 195 (of which 145 were imported) and the deaths 119, the ratio per 1000 being 0·12, 72 of these occurred in Esplanade section (4·53 per 1000); in no other section did the ratio exceed 0·16 (Sion), and in 11 sections there was not a single death. No testimony could be more conclusive than these figures as to the efficiency of the public health service under most difficult circumstances. *Influenza* was prevalent throughout the year, and 1605 deaths (1·63 per 1000) were attributed to this cause; in 1919 the ratio had been 1·98, and in 1918 4·04. *Tuberculosis* caused 1841 deaths (1·87 per 1000), of which 1631 were due to phthisis; this was a considerable improvement on the preceding year (2·83), and on the decennial average (2·39); the highest ratios (9·62 and 8·34) were registered in Esplanade and Upper Colaba sections; the lowest (0·20) both in Sewri and in Harbour and Docks sections. Among Hindus generally the ratio was 1·61; among Mahomedans 2·83, and for Anglo-Indians 4·05. A tuberculosis sanatorium has been opened on Bhoiwada Hill at Parel, where 114 cases were under treatment, of whom 69 were discharged and 22 died. For ague and remittent fevers 3216 deaths were registered, and in addition 311 deaths from "malaria," under which heading other fevers may very likely have been included; the mortality ratios were 3·28 and 0·31 per 1000 respectively. For the quinquennium 1915–19 the corresponding ratios had been 3·02 and 0·23. For malaria, and ague, and remittent fevers collectively (3·59 per 1000), the death ratios in the Ward sections of the city varied from 1·44 in Fort South and in Chukla to 9·28 in Sion and 10·06 in Sewri; in regard to race, for Hindus generally the combined ratio was 4·01, for Mahomedans 3·57, for Parsees 1·01, for Anglo-Indians 0·23 per 1000. It is obvious that these wide variations in incidence depend on *local* conditions, and are not attributable to the climate. An investigation was carried out as to the condition of the spleen in children in various poor class houses and charitable institutions; 6614 children were examined, with the result that splenic enlargement was found in 4·41 per cent., the ratio varying from 0·79 per cent. in Chowpati section of Ward D to 12·47 per cent. in Worli section of Ward G.

[1] Administration Report of Municipal Commissioner, 1920–21. Health Officer's Report for 1920. Bombay Times Press. 1921.

Among 9442 boys attending municipal schools in the city who were examined, the ratio was found to be 4·23, and among 4549 girls 6·57 per cent. Almost all the cisterns in the city have been rendered mosquito-proof, but the covers provided are frequently left open.

Water-Supply and Housing.

There have been difficulties in regard to the water-supply of Bombay for some considerable time past; the quantity available from Tansa lake (some 50 miles north-east, near Atgaon station on the G.I.P. Ry.), and from Vehar lake (in Salsette Island, 25 miles north) has been found to be insufficient; to remedy this a third pipe line from Tansa lake is in course of construction. As to drainage, also, the sewers have been found incapable of carrying off the quantity of sewage during the rains; with increase of water-supply this difficulty will, of course, be aggravated. "These defects will be remedied when the construction of the new main sewer outfall has been completed." There are still 13,704 basket privies in use. Housing conditions are bad; "in the congested areas of the city houses four or even five storeys high will be found attached on either side and separated from a similar row of houses by a gully of less than 6 feet in width, which takes the overflow from privies." Steps have been taken to remedy this state of affairs; some 6000 tenements will shortly be under construction, and later on another 13,000 will be provided under the Worli scheme of the Improvement Trust. (Worli is on the west of the island some four miles north of Malabar Hill.)

Vaccination.

Dr. N. H. Choksy, reporting on the work of the Arthur-road Hospital, gives a very interesting and instructive table showing the influence of vaccination on the fatality of small-pox, compiled from the statistical records of 33 years. Among 6064 unvaccinated small-pox patients the case mortality was 35·7 per cent.; among 7413 patients who had been vaccinated the ratio was 14·5 per cent. During the last 12 years (1909–20) among the unvaccinated patients the case mortality varied from 26·6 per cent. in 1917 to 42·2 per cent. in 1909; in those vaccinated, from 10·0 per cent. in 1919 to 19·2 per cent. in 1914. Among 91 children under 10 years old admitted with small-pox in 1920, the case mortality in 54 unvaccinated was 35·2, among 37 vaccinated 5·4 per cent.

At the Maratha Plague Hospital there were only 123 admissions for plague, these being fewer than in any year since the outbreak of the disease in 1896; the case mortality was 64·2 per cent. Dr. Choksy obtained the best results with colloidal preparations of iodine; with this treatment in 260 cases the fatality was 59·9 per cent.

This report is fully illustrated with diagrams and tables; a sketch plan, showing the district areas of the city as at present existing, would be an acceptable addition.

BARTHOLOMEW FAIR.

IN connexion with the celebration of the 800th anniversary of the founding of St. Bartholomew's Hospital, on June 5th–8th, there will be a revival, after nearly 100 years, of the great City Fair of London, Bartholomew Fair. The fair originated in the permission given to Rahere by Henry, King of the English, to hold a cloth fair to assist the erection and maintenance of the hospital he was building on the site where it now stands. The Hospital and the Priory Church drew a concourse of pilgrims to Smithfield, and through the crowds thus assembled the fair grew in strength and importance. The students of St. Bartholomew's Hospital to-day have selected the Tudor period as being the one which illustrates Bartholomew Fair at the zenith of its existence, and the revels, contests, and sports which characterised the fair at that period will be reproduced this year. The Lord Mayor of London will open the fair. Gifts for the fair will be welcomed, and should be addressed to the Matron, St. Bartholomew's Hospital, E.C. 1, and marked "Bartholomew Fair."

"PEG NICHOLSON'S KNIGHTS."

To the Editor of THE LANCET.

SIR,—Dr. Hingston Fox, in his interesting address to the Hunterian Society, reported in THE LANCET last week, refers to the fact that Sir William Blizard received his knighthood while he was first president of that society. May I add a note as to the circumstances under which Blizard received his honour?

The life of the King had been attempted by a mad woman, named Margaret Nicholson, who, with a knife in her hand, rushed at the King as he sat in his carriage. Arrested, the woman was sentenced to death by the Privy Council, but pardoned by the King and sent to a lunatic asylum where she lived several years. To congratulate the King upon his escape, every corporation of importance sent a deputation. The head of each deputation was knighted. The Royal College of Surgeons sent its President, Mr. Blizard, who, by this means, received the accolade. Every gentleman so honoured became known as a "Peg Nicholson Knight."

May I add to this note a reference to the allusion you make to the handsome fee of 5000 guineas offered to Sir Andrew Clark by a patient who had gone to the Riviera. The gentleman, a man of great wealth, retained Sir Andrew Clark for a period of some six weeks and showed him the kindest hospitality. When the physician left, the patient offered him a fee of 5000 guineas. This Sir Andrew Clark declined on the ground that he had received so much comfortable hospitality during his stay. As he was leaving, however, the patient's wife put an envelope into his hand, saying, "As you would take nothing for coming to see my husband, give this to the London Hospital." The envelope contained a cheque for 5000 guineas.

I am, Sir, yours faithfully,

S. D. CLIPPINGDALE.

Malvern-road, Hornsey, N., April 30th, 1923.

HELLO, WEATHER PROGNOSIS!

DURING the present week an arrangement came into force by which the Post Office, in conjunction with the Air Ministry, communicates the daily weather reports to the telephone exchanges throughout the country. Any subscriber at the mere cost of a local call can now ring up his exchange after teatime and obtain a weather forecast for the following day. The Post Office hopes that the information may be of special benefit to farmers and other residents in rural areas. No doubt the accuracy of weather forecasts is greater when pooled over a sufficiently large area, but they have, we fear, hardly arrived at the stage of exactitude to determine a practitioner whether or not to take out his closed car or to determine a patient whether it is safe to leave umbrella and macintosh at home. Individual prognosis is difficult and can hardly be said yet to be completely solved whether for medicine or meteorology.

HEALTH POSTERS.

OUR contemporary, the *Guy's Hospital Gazette*, does not despair of postering the nation into health as a post-war occupation analogous to the postering into patriotism and postering into thrift of pre-war and war times. Substantial prizes are offered to be competed for by readers of the *Gazette*, for the best sentences suitable for a Health-First campaign. Mr. Frank Bryant, J.P., M.P., Colonel F. E. Fremantle, M.P., F.R.C.S., and Dr. Lauriston E. Shaw have consented to act as judges. The whole of the prize-money has been donated, and the surplus entrance fees, after allotting £13 (in certain contingencies) to augment the prizes, will be paid over as a contribution to the hospital. It is pleasant to find a competition to which no exception can be taken.

THE TREATMENT OF DISEASE ON COMMISSION.

A CORRESPONDENT, who is an analyst and consulting chemist, sends us the following letter (undated) which has just reached him:—

SIR,—I am enclosing you my booklet; it will give you some idea how I treat disease. My fee for consultation is £2 2*s.*; subsequent fees according to the number of visits. I am prepared to give you 25 per cent. commission on any patients you may send me—cash down as soon as received by me. When recommending clients, please give them your card that I may know by whom they are sent.

Thanking you in anticipation.

Yours faithfully,

J. LANGDON-LANGDON.

Diploma U.S.A., Physio-Medical Specialist.

Our correspondent had supposed that the "American Diploma" was a thing of the past. It appears not.

A GENERAL PRACTITIONER'S CARD INDEX.

WE have received from Messrs. H. K. Lewis and Co., Ltd., specimen cards and particulars of a card index system for book-keeping and case-taking which seems to constitute a simple and convenient means of dealing with these sides of a general practitioner's work. The book-keeping card combines day-book and ledger, and will last for one or several years, according to the number of entries made. A second card provides a morning and evening temperature chart, arranged for four weeks, based on the Rigdene clinical chart. A third card holds case records, with space for recording number, name, age, sex, date, address, and occupation, and for notes of the case. The fourth card is a blank for continuations. A cabinet is supplied for holding the cards; the latter can be perforated for insertion in a holder to be carried on the day's round. Specimen cards with details of prices of cabinets and holders will be sent to any medical practitioner on application to Messrs. Lewis, at 136, Gower-street, London, W.C. 1.